Administrator's Guide for ViewStation EX, ViewStation FX, and VS4000

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About this Guide

The *Administrator's Guide for ViewStation EX, ViewStation FX, and VS4000* is for administrators who need to:

- Learn about and set up the system hardware
- Configure the system for use in your network environment
- Customize the behavior and appearance of the system for easy and efficient use
- Obtain information about calls made by the system, and gather network usage and performance data
- Troubleshoot any issues that occur with the system

Other available documents include:

- *Setting Up the System*, which describes how to install the hardware
- *Quick Tips for ViewStation EX, FX, and VS4000*, which is a quick reference for use during calls
- The *Getting Started Guide*, which describes how to place calls and perform other conferencing tasks
- Release Notes, Quick Tips Sheets, Setup Sheets for your optional hardware

For support or service, please contact your Polycom distributor or go to Polycom Support at www.polycom.com/support.

Polycom recommends that you record the serial number of your system here for future reference. The serial number for the system is printed on the unit.

System Serial Number: _____

Option key:_____

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1

Introducing the ViewStation EX, ViewStation FX, and VS4000 Systems

Your Polycom video conferencing system is a state-of-the-art visual collaboration tool. With crisp, clean video and crystal-clear sound, your system provides natural videoconferencing interaction through the most advanced video communications technology.

This chapter describes the standard and optional hardware components available for your system and how to install them.

If you need additional information, refer to the document that was provided with your system. Optional components also have setup guides.

To obtain additional copies of any of these documents, refer to the documentation CD that came with the system or go to the Polycom web site, www.polycom.com/videodocumentation.

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Key Features

Breakthrough Video Quality

- **Best for low bandwidth calls** — The newly-supported H.264 standard provides twice the video quality of H.263 in calls that use lower line rates.
- **Best for high bandwidth calls** — Polycom's own standards-based Pro-Motion™ 50/60 fields per second video provides television-like quality in high bandwidth calls.

Industry-Leading Audio Quality

- **Customizable audio sources** — You can connect an external audio system or a mixer for additional control over what people hear at the far site.
- **Better sound in large rooms** — Improve the audio pick-up in larger rooms by connecting a second omnidirectional microphone pod.

AES Encryption Support

- **Standards-based encryption at all speeds up to 2Mbps**
  - The ViewStation EX, ViewStation FX, and VS4000 systems now offer an Advanced Encryption Standard (AES) encryption option for secure point-to-point and multipoint calling (IP and ISDN).
  - The encryption option supports National Institute of Standards and Technology (NIST) approved, FIPS 197 compliant 128-bit AES encryption with extended Diffie-Hellman key distribution recommended by the H.325 (version 3) standard.
- **Encryption features include:**
  - Optional automatic encryption of point-to-point and multipoint calls.
  - On-screen indicators that show whether encryption is in use during calls.
  - Interoperability with other systems using the H.235 (version 3) standard encryption implementation.

Additional Security Features

- **Control remote access** — The local administrator can specify which remote management interfaces can be used — FTP, Telnet, SNMP, or the ViewStation web interface.
  The local administrator may choose not to allow remote management.
- **Connect encryption equipment to the system** — Add the optional Serial V.35/RS-449/RS-530 Network Interface Module to support V.35, RS-449, and RS-530 devices.
- **Use an optical dialing isolator** — The Serial V.35/RS-449/RS-530 Network Interface Module supports NSA-approved optical dialing isolators.

Easy Calling

- **Multipoint calling** — You can place IP, ISDN, and mixed calls that include up to three other sites at once using the internal multipoint capability. This is standard on ViewStation FX and VS4000, and optional on the ViewStation EX.

For information about purchasing the multipoint call option for ViewStation EX, please contact your Polycom distributor.

- **Cascaded multipoint calls** — The sites that you call may also call other sites. By calling up to three other sites, and allowing each of them to add one or two more sites, you can connect up to ten sites in a call without using an external bridge.
- **Dial-in calling** — Allow others to call your system (IP, ISDN, or analog telephone line) while it is in a call, for additional flexibility in multipoint calling.

Rich Conference Experience

- **See more with single-monitor systems** — Use the continuous presence viewing mode to show all sites on a single monitor.
- **Additional monitors** — Connect an additional television monitor to show the far site, and a VGA monitor or projector to show presentation material. The ViewStation FX and VS4000 allow you to connect up to three additional television monitors, for a total of four.
- **Additional camera** — Add a document camera to show printed documents and other objects. The ViewStation FX and VS4000 also allow you to add an auxiliary pan/tilt/zoom (PTZ) camera to provide a second view of your site.

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- **High resolution data collaboration** — You can use the optional Visual Concert FX to share content from your computer at up to 1280 x 1024 resolution, while your system continues to send live video from your site.
- **Call streaming** — Multicast your conference to additional viewers via the web interface.

Enhanced User Experience

- **New remote control design** — Navigate through the configuration screens and place calls easily using the new remote control.
  - **Go Back** — Navigate back through the menus using the Back button.
  - **Go Home** — Return to the main screen with one button press.
  - **Enter a dot** — Enter addresses and names that include dots using the Dot button.
  - **Color-coded buttons** — Buttons for related features are color coded to help you find them quickly.

The new remote control is compatible with older ViewStation EX, ViewStation FX, and VS4000 systems. For information about purchasing a new remote control, please contact your Polycom distributor.

- **Improved control of content with Visual Concert FX** — You can set the system to allow participants to share content as soon as the PC is connected, or when they press the Play button on the Visual Concert FX unit.

Network Flexibility

- **Built-in LAN connectivity** — ViewStation EX, ViewStation FX, and VS4000 systems include a dual 10/100 Ethernet port, providing connectivity for a PC or other device in addition to allowing IP calls.
- **Optional ISDN connectivity** — Quad BRI and V.35/RS-449/RS-530 network interfaces are available for ViewStation EX, ViewStation FX, and VS4000 systems. In addition, a PRI network interface is available for ViewStation FX and VS4000 systems.
- **Support for private networks** — If you use an ISDN network interface, you can configure your system for your organization's private network.

- **POTS connectivity** — The ViewStation EX, ViewStation FX, and VS4000 systems can be connected to analog telephone networks.
- **Mixed multipoint calling** — ViewStation EX, ViewStation FX, and VS4000 systems can place multipoint calls that include both IP and ISDN sites.

Remote Management

- **Address Book Utility** — Maintain system address books easily with the enhanced Address Book Utility. You can add entries and save them to your PC and then transfer them to other ViewStation and VSX systems in your organization.
- **Secure remote management** — The local administrator's password on the system prevents users from changing system configuration while allowing you to manage the system remotely.
- **Call Detail Reports** — Access the system's call history from the web interface. You can download the data to a spreadsheet application for sorting and formatting.
- **Remote diagnostics** — Tools in the web interface allow you to identify and correct issues that affect the user's experience.

Easy Installation

- **Simple setup, flexible room arrangement** — The ViewStation EX and ViewStation FX fit conveniently on top of a television monitor. The VS4000 is easy to install in an equipment rack, on top of a desk, on a credenza, or in a cart.
- **IP or ISDN calling** — The ViewStation EX, ViewStation FX, and VS4000 systems have a built-in 10/100 Mb Ethernet port for IP calls. Add the optional Quad BRI or PRI (ViewStation FX and VS4000 only) network interface to make calls over your ISDN telephone lines.
- **Easy configuration wizard** — The system setup wizard detects your network connections and guides you through configuring the system to work on an IP network or an ISDN network.
- **Auto-sensing power supply** — The system automatically adjusts for line voltages from 90 to 264 V and line frequencies from 47 to 63 Hz.

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Standard System Components

This section describes the standard components that come with ViewStation EX, ViewStation FX, and VS4000 systems. The models differ somewhat in their standard components, as noted in the descriptions of the components.

In addition to the standard components, you can connect optional items to enhance your videoconferences. These are described in the next section, Optional System Components on page 1-11.

Main System

The ViewStation EX and ViewStation FX set-top systems provide cutting-edge videoconferencing technology in a sleek design. The set-top contains the main camera, system software, and internal hardware.

The VS4000 is a rack-mounted videoconferencing system that provides enhanced videoconferencing capabilities including connections for up to three cameras and a VCR or DVD, up to five monitors (four NTSC or PAL and one VGA), VCR inputs and outputs, LAN connectivity for a computer, and connections for an external audio system.

ViewStation EX

ViewStation FX

VS4000

The original VS4000 uses 4-pin mini-DIN connectors for all S-Video connections; the enhanced VS4000 uses dual BNC connectors.

Remote Control

The remote control is designed to make it easy to set up and operate the system — a clearly marked, color-coded button corresponds to each common user task.

For more information about how to use the remote control, refer to the *Getting Started Guide* available in the Documentation Library on the CD that came with the system or at the Polycom web site, www.polycom.com/videodocumentation.

Main Camera

The ViewStation EX and ViewStation FX come with an integrated main camera. Polycom recommends the Polycom PowerCam™ as the main camera for the VS4000 because the system uses a single connector for camera power and video, camera control, and the camera's integrated infrared remote control receiver.

The VS4000 system can also use a Sony EVI-D100 (NTSC) or EVI-D100P (PAL) camera as its main camera.

The enhanced VS4000 is designed to be used with the PowerCam. Although it can use any of the cameras supported by the original VS4000, the full Pan/Tilt/Zoom (PTZ) functionality is available only with the PowerCam.

Microphone

The microphone pod provides audio input to the system. Its advanced audio technology focuses on the speaker so that the speaker's voice does not have to compete with background noises, such as the sound from an air conditioner, to be heard. The microphone pod is designed to pick up voices from any direction.

The ViewStation EX comes standard with one microphone pod; the ViewStation FX and VS4000 come with two.

Power Supply

The ViewStation EX and ViewStation FX set-top systems have an external power supply; the VS4000 has an internal power supply. They all use line voltages between 90V and 260V and line frequencies from 47 Hz to 63 Hz.

Do not use any power supply other than the one supplied with your ViewStation EX or ViewStation FX system. Using the wrong power supply will void the warranty and may damage your system.

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Hardware Kit

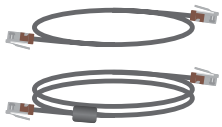
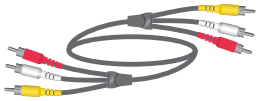
The hardware kit that comes with the system includes:

Item	System	Description
Cable ties and cable tie mounts	ViewStation EX (2) ViewStation FX (2) VS4000 (4)	For keeping the system's cables from becoming entangled
Disks of hook-and-loop material	ViewStation EX ViewStation FX	For securing the ViewStation EX or ViewStation FX set-top unit to the top of a monitor
Vinyl feet	ViewStation EX ViewStation FX	For stabilizing the set-top unit if the top of your monitor slopes back sharply
Rack-mount brackets and screws	VS4000	For mounting the system in a rack
Batteries	ViewStation EX (3) ViewStation FX (3) VS4000 (6)	For the remote control

Cables

The following cables come with either the ViewStation EX, ViewStation FX, or VS4000 system. For more information about which cables are standard and optional with your particular system and how to connect them, refer to the system setup card that was provided with your system.

Cable Name	System	Description
Power cord	ViewStation EX, ViewStation FX, VS4000	Black cord that provides power to the power supply or the system.
LAN cable	ViewStation EX, ViewStation FX, VS4000	Cable with orange RJ-45 connectors that connects to the LAN.
PC LAN cable	ViewStation FX, VS4000	Cable with blue RJ-45 connectors that connects to a PC.

Cable Name	System	Description
Microphone pod cables 	ViewStation EX, ViewStation FX, VS4000	Cables with brown RJ-11 connectors that connect to microphone pods.
Telephone cable	ViewStation EX, ViewStation FX, VS4000	Pink cable that connects to the POTS line (in approved countries only).
S-Video cables	ViewStation EX, ViewStation FX Original VS4000	Cables with yellow 4-pin mini-DIN connectors for connecting to monitors and cameras.
S-Video cables	Enhanced VS4000	Cables with yellow and white BNC connectors and yellow 4-pin mini-DIN connectors for connecting to monitors and cameras.
S-Video adapters	Enhanced VS4000	Short cables with yellow and white BNC connectors and yellow 4-pin mini-DIN connectors for connecting standard S-video cables to the system.
Combination S-Video, audio, and composite video cables	ViewStation EX, ViewStation FX	Cables with yellow 4-pin mini-DIN connectors and yellow, red, and white RCA connectors for connecting a monitor to provide video and audio
VCR cables 	ViewStation FX, VS4000	Cable with yellow, red, and white RCA connectors that connect to a VCR or DVD.
VGA cable	ViewStation EX, ViewStation FX, VS4000	Cable with black (for ViewStation EX and FX) or yellow (for VS4000) DB-15 connectors that connects to an additional monitor or projector.
VGA adapter	ViewStation FX	Short cable with a single black high-density subminiature D connector at one end, and standard VGA and S-Video connectors at the other end to connect to the cables for an S-Video monitor or a VGA monitor or projector.

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Cable Name	System	Description
Serial port cable	VS4000	Cable with black (for ViewStation EX and FX) or purple (for VS4000) DB-9 connectors that connects to a touch panel or other RS-232 device.
Audio cable	VS4000	Cable with red and white RCA connectors for connecting to the main monitor's audio inputs or to an external audio system.
Mixer cables	Enhanced VS4000	Cables with mini-Phoenix connectors that connect to a Polycom audio mixer. One cable has a white RCA connector; the other has a black one.

Documentation

In addition to the documentation CD, you received the following hardcopy documents with your system:

- *Read Me First*, which lists where to get the Release Notes, video-test call numbers, and product support information.
- *Setting up the System*, which describes how to install the system.

You can find the latest documentation at the Polycom web site, www.polycom.com/videodocumentation.

Optional System Components

This section describes the components that you can purchase as an option with a ViewStation EX, ViewStation FX, or VS4000 system.

Network Interface Modules

These network interface modules are available for the ViewStation EX, ViewStation FX, or VS4000 system:

Network Interface Module	System	Description
Quad BRI	ViewStation EX, ViewStation FX, VS4000	Allows you to connect to an ISDN network using up to four BRI lines.
PRI	ViewStation FX, VS4000	Allows you to connect to an ISDN network using a PRI line.
V.35/RS-449/RS-530	ViewStation EX, ViewStation FX, VS4000	Allows you to connect to third-party network equipment, including encryption equipment and RS-366 dialers.

Additional Microphone Pod

You can connect up to two microphone pods to the system or to a Visual Concert FX unit.

If you install more than one microphone pod, ensure that all microphone pods are at least 6 ft (1.8 m) apart.

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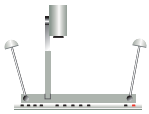
Visual Concert FX

The Visual Concert FX lets you share content from your computer during calls and, if you need to make a presentation, it also lets you connect a projector or a VGA monitor. You can use the Visual Concert FX with the ViewStation EX, ViewStation FX, and VS4000 system.

The Visual Concert FX has dual stream capability, so you can display video and graphics at both the near and far sites, with video on one monitor and the live graphics on a second monitor. The Visual Concert FX provides VGA output at a screen resolution of up to 1280 x 1024 pixels.

For more information about the Visual Concert FX, refer to the documentation that came with your Visual Concert FX. You can obtain copies of the Visual Concert FX documents at the Polycom web site, www.polycom.com/videodocumentation.

Document Camera or Other Additional Camera



Besides the main camera for your system, you can connect other cameras. You can connect a document camera as well as an additional pan/tilt/zoom (PTZ) camera to the ViewStation FX or VS4000; you can connect only a stationary second camera to the ViewStation EX.

You can use any of the following PTZ cameras as an additional camera on a ViewStation FX or VS4000 system:

- ❑ Sony® EVI-D30 (NTSC) or Sony EVI-D31 (PAL)
- ❑ Sony EVI-D70 (NTSC) or Sony EVI-D70P (PAL)
- ❑ Sony EVI-D100 (NTSC) or Sony EVI-D100P (PAL)
- ❑ Elmo PTC-100S (NTSC)
- ❑ Elmo PTC-110R (PAL)

Additional Monitor

You can get more flexibility in how you view calls by connecting an additional monitor, such as a VGA monitor, to your system. For example, an additional monitor allows you to view the person you call at the same time as you view a presentation.

System	Number of Monitors	Type of Monitors
ViewStation EX	Up to two television monitors and a VGA monitor	Primary monitor can be S-video or composite. The second television monitor must be S-video.
ViewStation FX	Up to four television monitors and a VGA monitor	Primary monitor can be S-video or composite. Other three television monitors must be S-video.
VS4000	Up to four television monitors and a VGA monitor	All four television monitors can be S-video or composite.

For high-resolution presentations, Polycom recommends using a VGA (computer) monitor.

VCR

You can connect a VCR or DVD to play recorded material during a call or to record your videoconference. You can also connect two VCRs to play material and record the conference at the same time.

Projector

You can connect a projector to your Polycom system. This can be very useful during presentations in large rooms.

Other Optional Components

You can add several other optional components to your system, such as those listed below. For more information, see your Polycom distributor.

- ❑ Touch panel — Allows you to operate the system with a touch panel rather than the remote control.
- ❑ VS4000 only: External infrared (IR) sensor — Allows you to install the system out of sight and use a camera that does not include a built-in IR sensor.
- ❑ Audio mixer — Lets you enhance the sound quality for calls in large rooms.

Polycom recommends using the Polycom Vortex line of products for installed audio.

2

Setting Up Your System Hardware

This chapter describes how to set up your system with the required components and optional equipment. It also includes checklists to help you prepare the site, including network connectivity, required network hardware, and room assessment.

If you need additional installation information, refer to the system setup document that was provided with your system.

For optional components, you can also refer to the setup sheet that was shipped with the component.

To obtain additional copies of any of these documents, refer to the documentation CD that came with the system or go to the Polycom web site, www.polycom.com/videodocumentation.

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Standard System Set-up

This section describes how to connect the components that are required for the basic system set-up. Procedures for connecting additional equipment are in the next section, Optional Equipment Set-up on page 2-10.

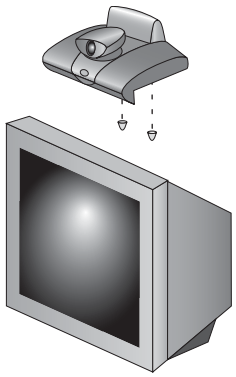
Positioning the Main System

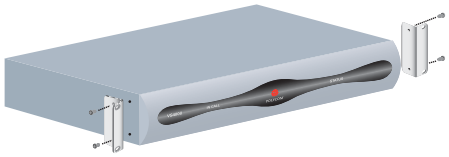
The ViewStation EX and ViewStation FX systems are designed to be placed on top of a monitor. If the monitor's chassis slopes back sharply, you may need to install feet on the bottom of the system to stabilize it. The hardware kit you received with the unit includes a pair of self-adhesive feet.

The VS4000 system is designed as a tabletop or rack-mounted unit. To mount it in an equipment rack, you will need to attach the mounting brackets provided with the system.

To position the system:

1. If necessary, install feet (ViewStation EX or ViewStation FX) or mounting brackets (VS4000) on the system.





2. Place the system in the desired location. Leave enough space to work, so that you can connect the cables easily.

The original VS4000 uses 4-pin mini-DIN connectors for all S-Video connections; the enhanced VS4000 uses dual BNC connectors. Because of this, installation procedures for cameras and monitors are slightly different for the two.

Main Camera

The ViewStation EX and ViewStation FX come with an integrated main camera, which is designed with a wide-angle lens.

Some older models of the ViewStation EX and ViewStation FX use a detachable wide-angle conversion lens. The detachable wide-angle lens cannot be used on systems with the newer style of camera.

Do not install a wide-angle conversion lens if your system uses the type of camera shown here.

The VS4000 uses a separate camera, which allows you to install the system in an equipment room rather than the conference room. This section describes how to install a Polycom PowerCam™ or other camera as the main camera.

The camera you connect to the Camera 1 input determines whether your system is an NTSC or PAL system. The VS4000 detects the camera type and provides the appropriate video to the TV monitor. Because of this, you must connect a camera to the Camera 1 input.

For best results, position cameras so that they do not normally point directly at a window or other source of bright light.

The enhanced VS4000 system's Camera 1 connections provide full PTZ functionality for the Polycom PowerCam only.

The original VS4000 system's Camera 1 connections provide this functionality for all supported PTZ cameras.

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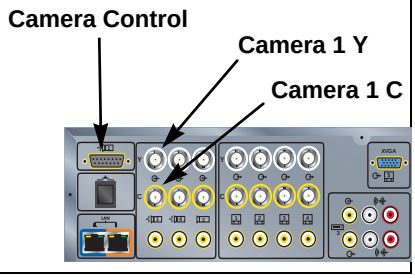
Original VS4000

Enhanced VS4000

To connect a Polycom PowerCam to the VS4000:

Original VS4000:	Enhanced VS4000:
1. Connect the break-out cable to the PowerCam. 2. Connect the S-video cable to the system's Camera 1 S-Video connector and to the 4-pin mini-DIN connector on the right side of the break-out cable's connector block. 3. Connect the VISCA cable to the system's DB-9 camera control connector and to the 8-pin mini-DIN connector on the break-out cable. 4. Be sure the camera's power is switched off. 5. Connect the camera's power pack to the center connector on the break-out cable's connector block, and to the appropriate power cord. 6. Connect the power cord to a power outlet.	1. Connect the single end of the video and control cable to the PowerCam. 2. Connect the S-video cable connector to an S-video to BNC adapter, and connect the adapter's yellow BNC connector to the camera 1 C connector, and the white connector to the camera 1 Y connector on the VS4000 system's rear panel. 3. Connect the camera cable's yellow DB-15 connector to the camera control 1 connector on the rear panel of the system. 

To connect other types of main camera to the original VS4000:

1. Connect an S-video cable to the camera's S-video connector and the Camera 1 connector on the system.
2. Connect a camera control cable (8-pin mini-DIN to DB-9) to the camera's VISCA in connector and to the camera control 1 connector on the rear panel of the system.
3. Connect the camera's power pack or cord to a power outlet.

If you want to connect an additional camera to your system, such as a document camera, see the Document Camera or Other Additional Camera section on page 2-18.

If you install an original VS4000 system out of the range of the remote control (for example, in a separate equipment room), you will need to connect an external infrared (IR) sensor and place it in the conference room. To order an external IR sensor, contact your Polycom reseller.

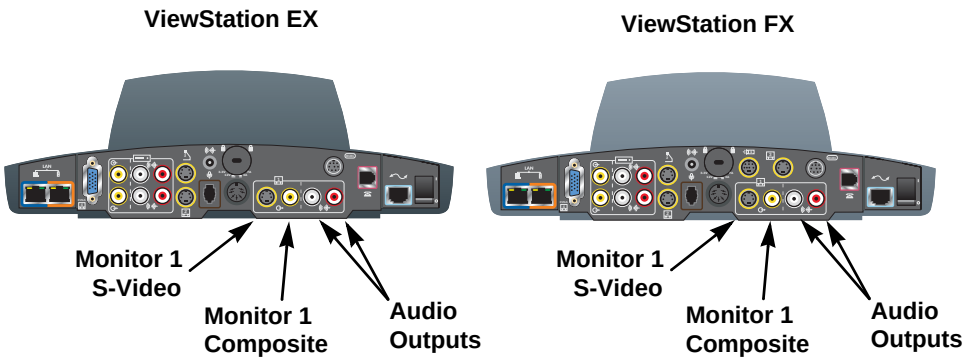
The enhanced VS4000 system uses the IR sensor built into the Polycom PowerCam, and does not require an external IR sensor.

Main Monitor

You will need to connect a television monitor to the system. This may be an NTSC or PAL monitor, depending on your system.

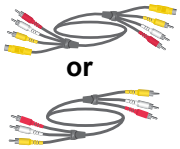
To connect a monitor to a ViewStation EX or ViewStation FX system:

>> Connect the monitor to the system's Monitor 1 S-Video or composite video output, and to the Monitor 1 audio outputs.

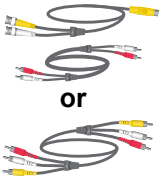


S-Video provides superior video quality, and is strongly recommended if the system is to be configured to display Asian fonts.

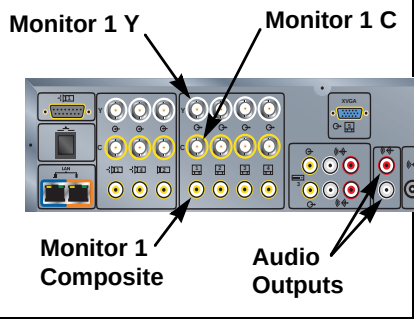
Original VS4000



Enhanced VS4000



To connect a monitor to a VS4000 system:

Original VS4000:	Enhanced VS4000:
1. Connect the S-video/audio/composite video cable to the system's Monitor 1 S-Video or composite video connector and to the monitor's video input. 2. Use the audio cable or the red and white connectors on the S-video/audio/composite video cable to connect the monitor's audio inputs to the system's audio outputs.	1. Connect the S-video cable to the monitor's S-video input and to the system's Monitor 1 Y (white) and C (yellow) connectors. 2. Use the audio cable or the red and white connectors on the S-video/audio/composite video cable to connect the monitor's audio inputs to the system's audio outputs. 

Microphone

For best audio, place the microphone pod:

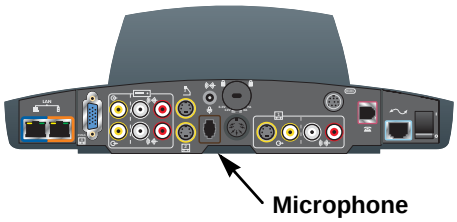
- ❑ on a flat surface (table, wall, or ceiling) away from obstructions, so the sound will be directed into the microphone elements properly,
- ❑ at least 3 ft (0.9 m) from the system, to prevent audio feedback
- ❑ centered in the area where call participants will be.

If you have two microphone cables, use the longer one to connect the microphone to the system. If you connect an additional microphone, use the shorter cable to connect it to the first one. The cable between microphones must not be longer than the cable from the system to the first microphone.

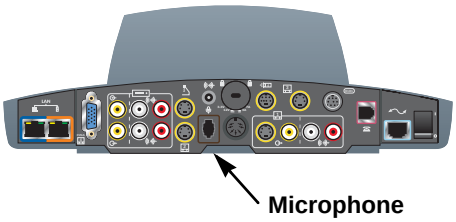
To connect a microphone pod:

>> Connect the microphone pod to the system's microphone connector using the brown RJ-9 microphone cable. Ensure that the ferrite bead is on the end that connects to the system.

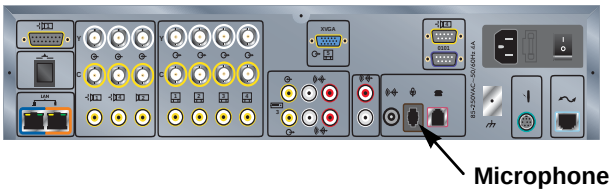
ViewStation EX



ViewStation FX



VS4000



Power Supply

The ViewStation EX and ViewStation FX set-top systems have an external power supply.

To connect the power supply

1. Connect the power supply to the power connector on the back of the system.
2. Connect the power cord to the power supply.

Leave the power cord unplugged until you have connected all standard and optional equipment to the system.

Be sure to remove the packaging collar from around the ViewStation EX or ViewStation FX system's camera before powering on the system.

Do not use any power supply other than the one supplied with your ViewStation EX or ViewStation FX system. Using the wrong power supply will void the warranty and may damage your system.

Remote Control

The remote control uses three AAA batteries, which are included in the hardware kit.

To install batteries in the remote control:

1. Remove the battery cover from the back of the remote control.
2. Refer to the diagram inside the remote control, and install the batteries in the orientation shown.
3. Reinstall the battery cover on the remote control.

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Optional Equipment Set-up

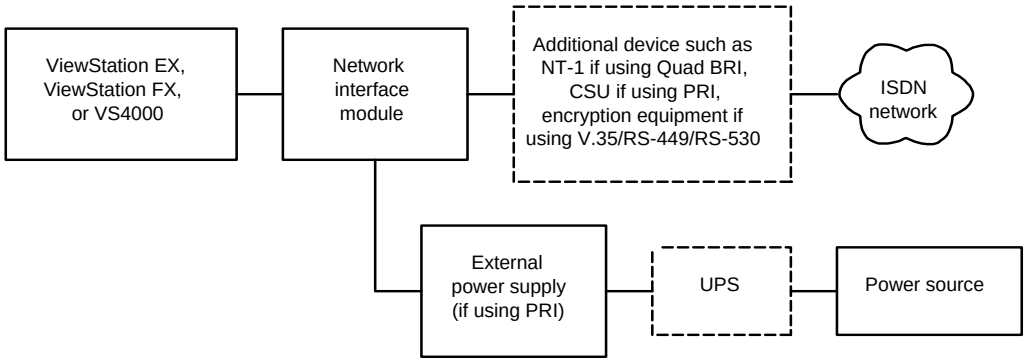
This section describes how to connect optional components to theViewStation EX, ViewStation FX, or VS4000 system.

Network Interface Modules

This section gives procedures for installing the following network interface modules:

- **Quad BRI** — Allows you to connect to an ISDN network using up to four BRI lines.
- **PRI** — Allows you to connect to an ISDN network using a PRI line. This option is available for the ViewStation FX and VS4000.
- **V.35/RS-449/RS-530** — Allows you to connect to third-party network equipment, including encryption equipment and RS-366 dialers.

The diagram below shows a general view of how network interface modules are installed.


ViewStation EX, ViewStation FX, or VS4000
Network interface module
Additional device such as NT-1 if using Quad BRI, CSU if using PRI, encryption equipment if using V.35/RS-449/RS-530
ISDN network
External power supply (if using PRI)
UPS
Power source

ISDN Network Hardware Checklist

Depending on your network type, you will need the following hardware:

If your ISDN network is...	You will need...
BRI	• Quad BRI network interface module with cables • Up to 4 BRI lines that will not be shared with other equipment • NT-1 device, if the system will be connected to a PBX network that does not provide an S/T interface **Note:** If your Quad BRI system is connected to a PBX that provides an S/T interface, do not use an NT-1 device.
PRI/T1 (commonly available in North America)	• PRI network interface module with cable • North America: Channel Service Unit (CSU), if the system will not be connected to a PBX network • PRI line
PRI/E1 (commonly available outside North America)	• PRI network interface module with cable • PRI line
Serial (V.35/RS-449/ RS-530)	• Serial V.35/RS-449/RS-530 network interface module • Third-party network equipment and cables

Quad BRI Network Interface Module

The Quad BRI network interface module allows you to make ISDN calls using up to four BRI lines.

In addition to the Quad BRI network interface module and the cables provided with it, you will need an NT-1 device if your site does not use an internal telephone system (PBX). A PBX or an NT-1 device provides the S/T interface that the Quad BRI module requires.

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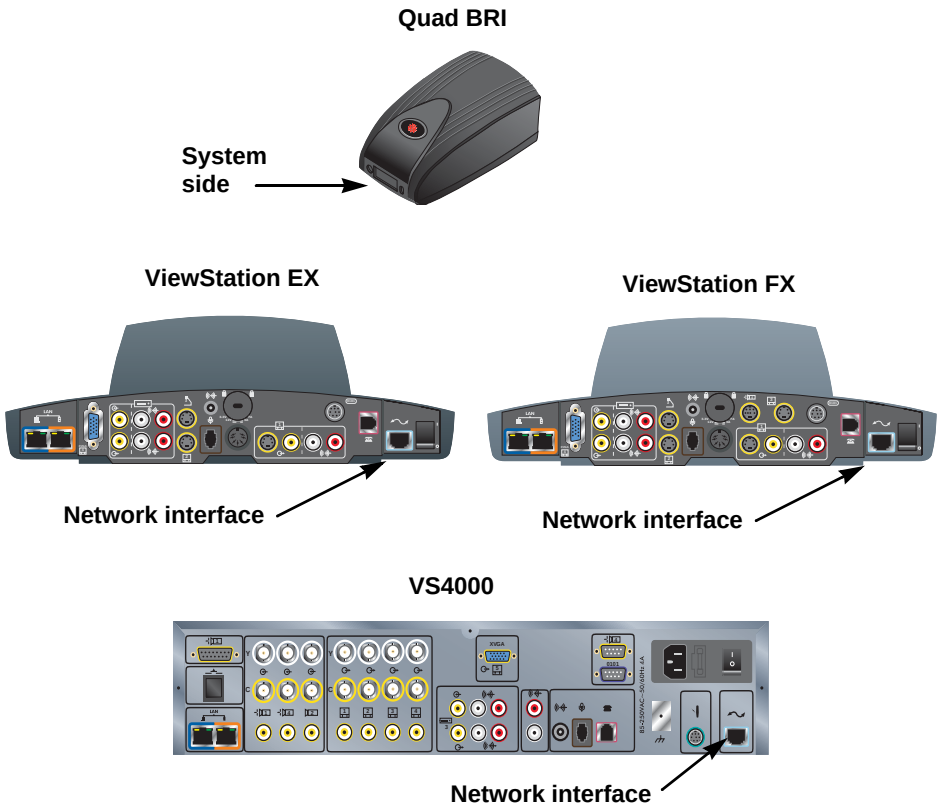
To install a Quad BRI network interface module:

1. Make sure your system is powered off.
2. Connect the system side of the Quad BRI network interface module to the system using the network interface cable that is color-coded light blue on one end, green on the other.



3. Connect the network side of the Quad BRI network interface module to the NT-1 device or to the ISDN network, as appropriate. If you do not connect BRI lines to all four ports, connect the ports in ascending order.

4. If you are using an NT-1 device, connect it to the ISDN network.

PRI Network Interface Module

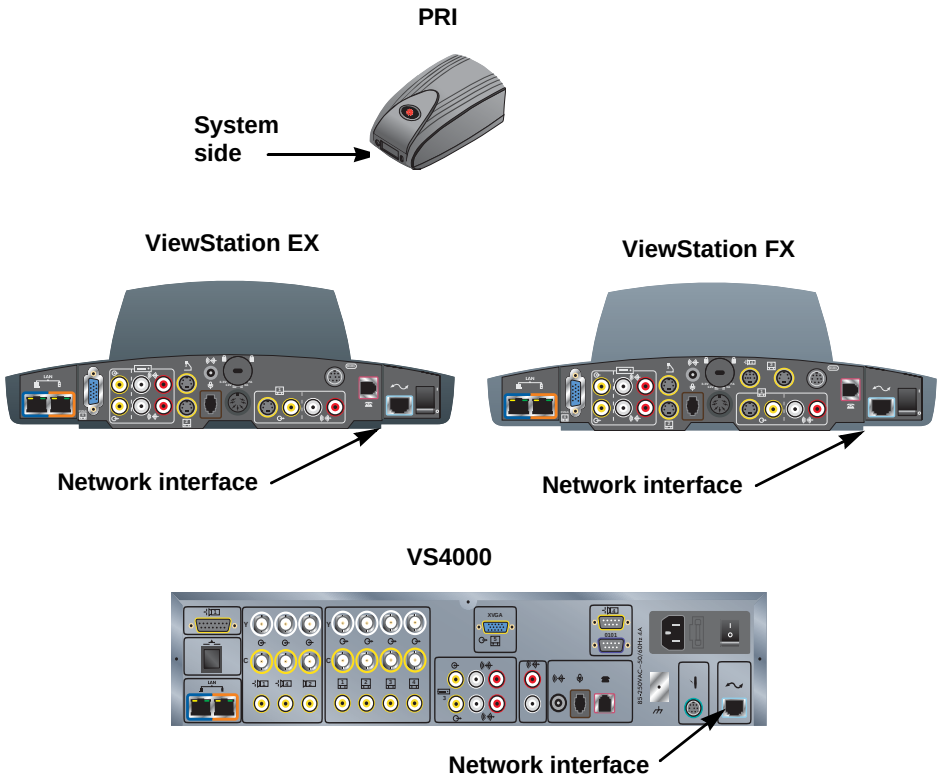
The PRI network interface module allows you to make ISDN calls using a PRI line.

You may need one of these items in addition to the PRI network interface module and the items provided with it:

- **External Channel Service Unit (CSU)** — If you connect a PRI T1 network interface module outside a PBX, you may wish to connect it through a CSU. The CSU isolates the PRI from the network, and continues to transmit a signal to the network even if the PRI network interface module loses power or is disconnected. This prevents the line from being deactivated. CSUs are used only in North America.
- **PBX crossover cable —** An RJ-45 crossover cable may be required when connecting the PRI network interface module to a PBX or other third-party network access device.
- **75 Ω coaxial adapter —** The PRI E1 line termination is 120 Ω. In some areas, however, the E1 network connection is via a 75 Ω coaxial cable. The PRI network interface module does not directly support this, but you can obtain passive adapter devices from various vendors.

To install the PRI network interface module:

1. Ensure that the system is powered off.
2. Connect peripheral side of the PRI network interface module to the system using the network interface cable that is color-coded light blue on both ends.



3. Connect the 12-volt DC power supply to the PRI network interface module and then to the UPS or wall outlet.

The external 12-volt DC power supply is mandatory in European countries, and strongly recommended in all installations.

If the PRI network interface module loses power, this creates an alarm condition that may result in the service provider disabling the line. The external power keeps the PRI network interface module from losing power when the system is powered off. Connect the external power supply to an uninterruptable power supply (UPS) if possible.

4. Connect the PRI network interface module to the ISDN network or to the CSU (North America only).

V.35/RS-449/RS-530 Network Interface Module

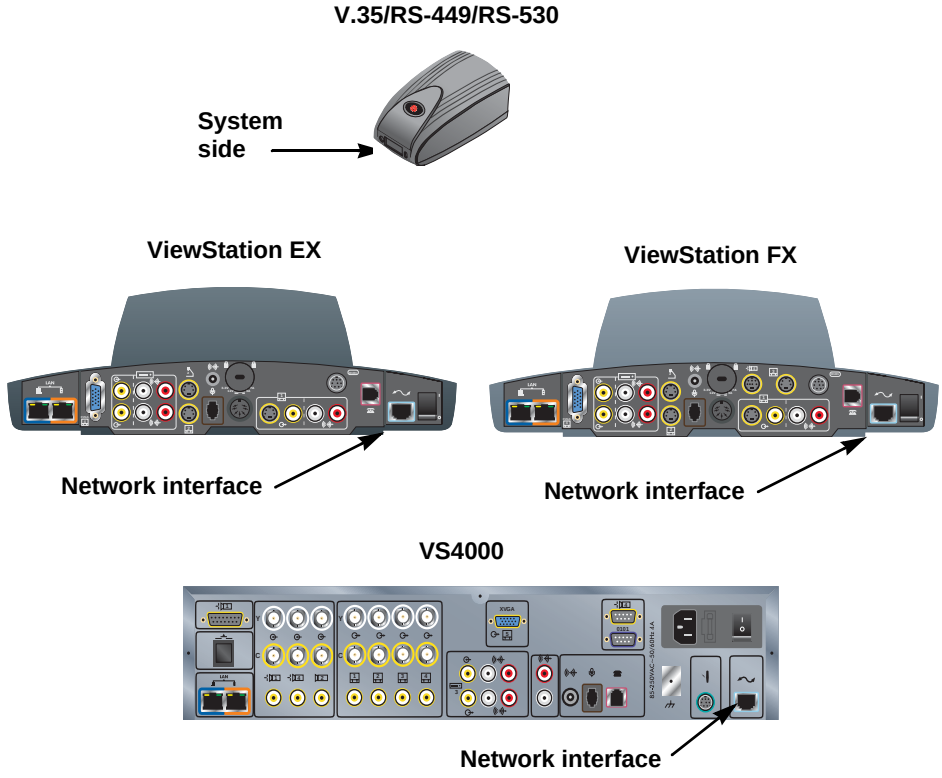
The V.35/RS-449/RS-530 network interface module allows you to connect the system to third-party communication equipment such as encryption devices.

You will need to provide appropriate cables to connect the V.35/RS-449/RS-530 network interface module to your communication equipment.

Polycom only provides technical support for V.35, RS-449, and RS-530 cables built and certified by Polycom. These cables are sold separately from the network interface module and are available from Polycom.

To install a V.35/RS-449/RS-530 network interface module:

1. Ensure that the system is powered off.
2. Connect the peripheral side of the network interface module to the system using the network interface cable that is color-coded light blue on both ends.



3. Connect the network side of the network interface module to the data communications equipment.

- If you have only one cable, connect it to port 1 of the network interface module and to the lowest-numbered port of the data communications equipment.
- If the data communications equipment does not use dialing, do not connect the cable connector marked **RS366 Interface**.

Additional Microphone Pod

You can connect an additional microphone pod to the system.

To connect an additional microphone pod:

1. Use the brown RJ-9 microphone cable to connect the additional microphone pod to the available connector on the microphone pod already installed.
2. Place the microphone pods at least 6 ft (1.8 m) apart.

For more information about how to connect microphone pods, refer to the setup sheet that came with your system.

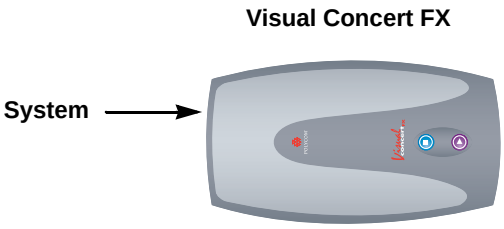
Visual Concert FX

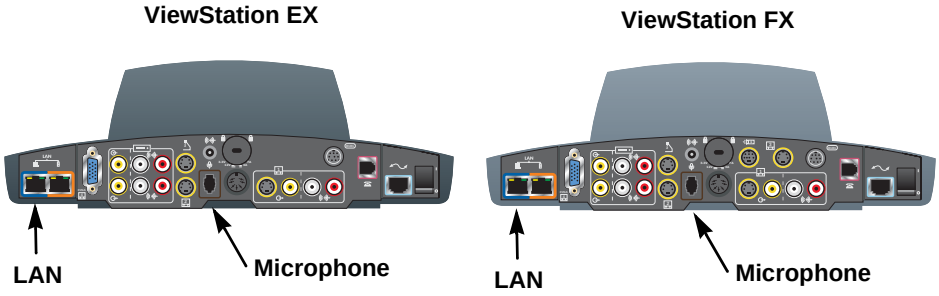
The Visual Concert FX uses the same connector on the system's back panel as the microphone pod. If you install aVisual Concert FX, you must use the connectors it provides for the microphone pod or pods.

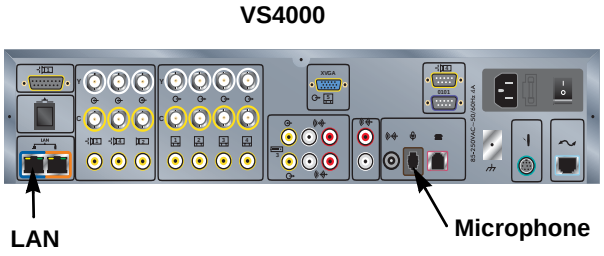
For more information about connecting the Visual Concert FX, refer to the *Visual Concert FX QuickStart* card that came with your Visual Concert FX.

To connect a Visual Concert FX:

1. Make sure the system is powered off.
2. Referring to the *Visual Concert FX QuickStart*, connect the single end of the system cable to the system connector on the Visual Concert FX.
3. Connect the system cable's LAN connector to the system's blue LAN port, which is at the left end of the back panel.
4. Connect the system cable's microphone connector to the system's microphone cable connector.







5. Connect the microphone pod or pods to the Visual Concert FX using the microphone pod cables included in the Visual Concert FX shipping box.
6. Connect the system cable's power connector to the power supply.
7. Connect the power cord from the power supply to a power outlet.

You can connect a VGA monitor to the VGA output on the Visual Concert FX instead of connecting the monitor directly to the rear panel of the system.

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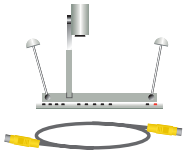
Document Camera or Other Additional Camera

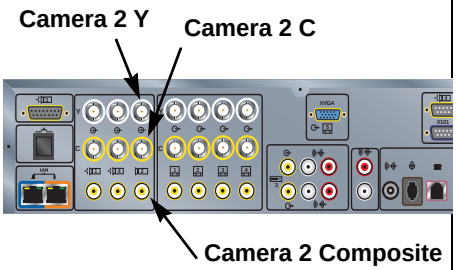
Besides the main camera for your system, you can connect a document camera as well as an additional pan/tilt/zoom (PTZ) camera to the ViewStation FX or VS4000; you can connect only a stationary second camera to the ViewStation EX.

The enhanced VS4000 allows you to designate any camera input as the primary camera.

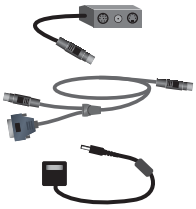
Ensure that the system is powered off before you connect cameras. If you connect a PTZ camera while the system is powered on, the system may not be able to control the camera.



To connect a document camera:

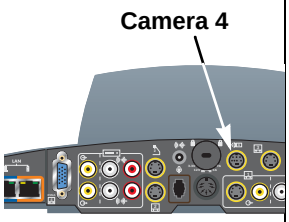
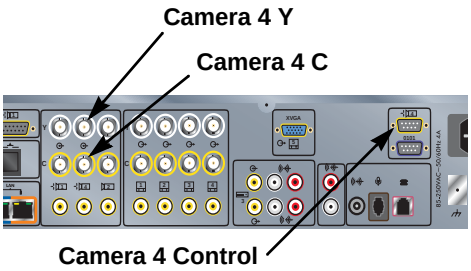
To a ViewStation EX or ViewStation FX:	To a VS4000 system:
Connect an S-video cable to the document camera and to the camera 2 connector on the rear panel of the system. 	**Original VS4000:** Connect an S-video cable to the document camera and to the camera 2 connector on the rear panel of the system. **Enhanced VS4000:** 1. Connect one end of the yellow S-video cable to the document camera. 2. Connect the other end of the S-video cable to an S-video to BNC adapter. 3. Connect the adapter's yellow BNC connector to the camera 2 C connector, and the white connector to the camera 2 Y connector on the VS4000 system's rear panel. 

Original VS4000



Enhanced VS4000

To connect an additional PowerCam:

To a ViewStation FX system:	To a VS4000 system:
1. Connect the break-out cable to the PowerCam. 2. Connect the 7-pin connector end of the Y-shaped PTZ cable to the camera 4 port on the rear panel of the system.  3. Connect the PTZ cable's 8-pin VISCA connector to the 8-pin mini-DIN connector on the left side of the break-out cable's connector block. 4. Connect the PTZ cable's 4-pin S-video connector to the 4-pin mini-DIN connector on the right side of the break-out cable's connector block. 5. Connect the camera's power pack to the center connector on the break-out cable's connector block, and to the appropriate power cord. 6. Connect the power cord to a power outlet.	1. Connect the break-out cable to the PowerCam. 2. Connect a mini-DIN to DB-9 VISCA cable from the system's camera 4 control connector to the 8-pin mini-DIN connector on the left side of the break-out cable's connector block. 3. **Original VS4000:**Connect an S-video cable to the 4-pin mini-DIN connector on the right side of the break-out cable's connector block, and to the Camera 4 S-video connector on the system. **Enhanced VS4000:** Connect an S-video cable to the 4-pin mini-DIN connector on the right side of the break-out cable's connector block, and to an S-video to BNC adapter. Connect the adapter's yellow BNC connector to the camera 4 C connector, and the white connector to the camera 4 Y connector on the VS4000 system's rear panel.  4. Connect the camera's power pack to the center connector on the break-out cable's connector block, and to the appropriate power cord. 5. Connect the power cord to a power outlet.

Be sure to remove the packaging collar from around the camera before powering on the system.

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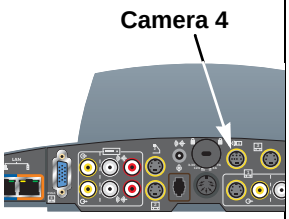
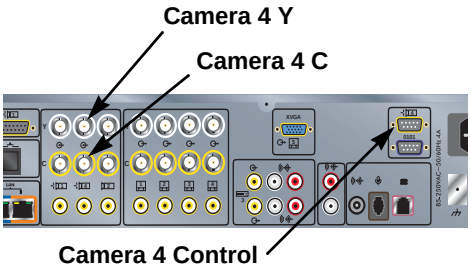
To connect an additional PTZ camera other than PowerCam:

To a ViewStation FX system:	To a VS4000 system:
1. Connect the 7-pin connector end of the Y-shaped PTZ cable to the camera 4 port on the rear panel of the system.  **2.** Connect the 4-pin end of the Y-shaped PTZ cable to the S-video connector on the camera. **3.** Connect the 8-pin end of the Y-shaped PTZ cable to the 8-pin VISCA IN port on the camera. **4.** Connect the camera's power pack or cord to a power outlet.	**1.** **Original VS4000**: Connect an S-video cable to the camera's S-video connector and to the system's Camera 4 S-video connector. **Enhanced VS4000:** Connect an S-video cable to the camera's S-video connector and to an S-video to BNC adapter. Connect the adapter's yellow BNC connector to the camera 4 C connector, and the white connector to the camera 4 Y connector on the VS4000 system's rear panel. **2.** Connect a mini-DIN to DB-9 VISCA cable from the camera's VISCA IN connector to the system's Camera 4 control connector.  **3.** Be sure the camera's power switch (if any) is off. **4.** Connect the camera's power pack or power cord. **5.** Connect the power cord to a power outlet.

For more information about how to connect an additional camera, refer to the setup sheet that came with your system.

Additional Monitor

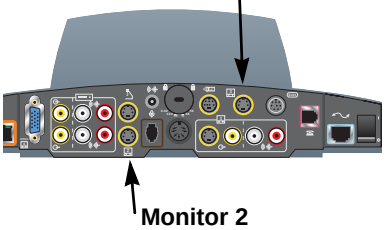
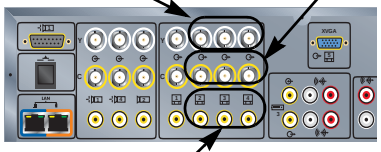
You can connect an additional television monitor to your system for another view of call participants or other video, and you can connect a VGA monitor for viewing material from a computer, such as high-resolution presentations.

Polycom recommends using television monitors to show people. For high-resolution presentations, Polycom recommends using a VGA (computer) monitor or a projector.

ViewStation EX
ViewStation FX

VS4000

To connect an additional TV monitor:

To a ViewStation EX or ViewStation FX:	To a VS4000 system:
Connect a yellow S-video cable to S-video connector on the monitor and to the appropriate monitor connector on the rear panel of the system. The ViewStation EX system only provides one additional television monitor output, the Monitor 2 output. **Monitor 3 S-Video (ViewStation FX only)**  **Monitor 2 S-Video**	**Original VS4000:** Connect an S-video or composite video cable to the monitor's video input and to the appropriate S-video or composite monitor output (monitor 2, 3, or 4) on the system. **Enhanced VS4000:** Connect an S-video cable to the monitor's S-video input and to an S-video adapter, and connect the adapter's yellow and white BNC connectors to the appropriate C and Y connectors, respectively, on the system's rear panel (monitor 2, 3, or 4), or Connect a composite video cable to the monitor's composite video input and to the appropriate composite output (2, 3, or 4). **Monitor 2, 3, 4 Y** **Monitor 2, 3, 4 C**  **Monitor 2, 3, 4 Composite**

Polycom recommends using S-video for television monitors. You may connect the monitor using a composite video connection, if the monitor does not have an S-video connector.

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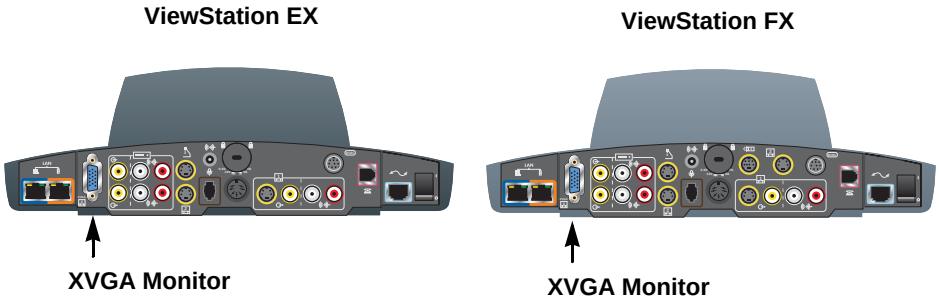
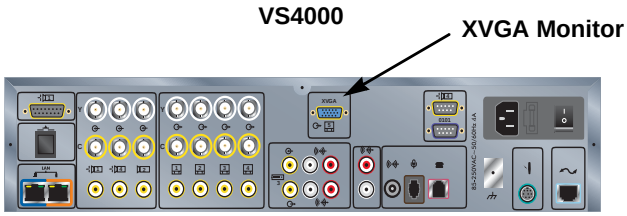
ViewStation EX and VS4000

ViewStation FX

To connect a VGA monitor to a ViewStation EX, ViewStation FX, or VS4000:

>> Connect a VGA cable from the monitor to the system's XVGA monitor output. If the system is a ViewStation FX, you may wish to use the VGA adapter cable so that you can connect an additional S-Video TV monitor as well. The S-video monitor is Monitor 4.





Projector

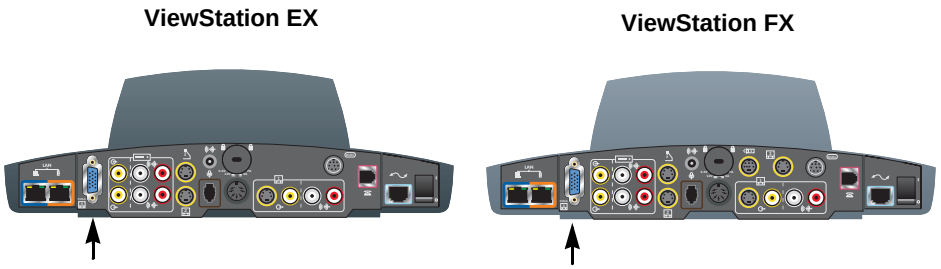
You can connect a projector instead of a VGA monitor to display presentation materials from a computer.

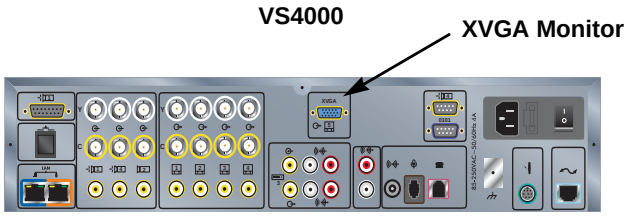
ViewStation EX
VS4000

ViewStation FX

To connect a projector:

>> Connect a VGA cable from the projector to the system's XVGA monitor output. If the system is a ViewStation FX, you may wish to use the VGA adapter cable so that you can connect an additional S-Video TV monitor as well.



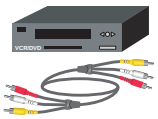


For more information about how to connect a projector, refer to the setup sheet that came with your system.

VCR

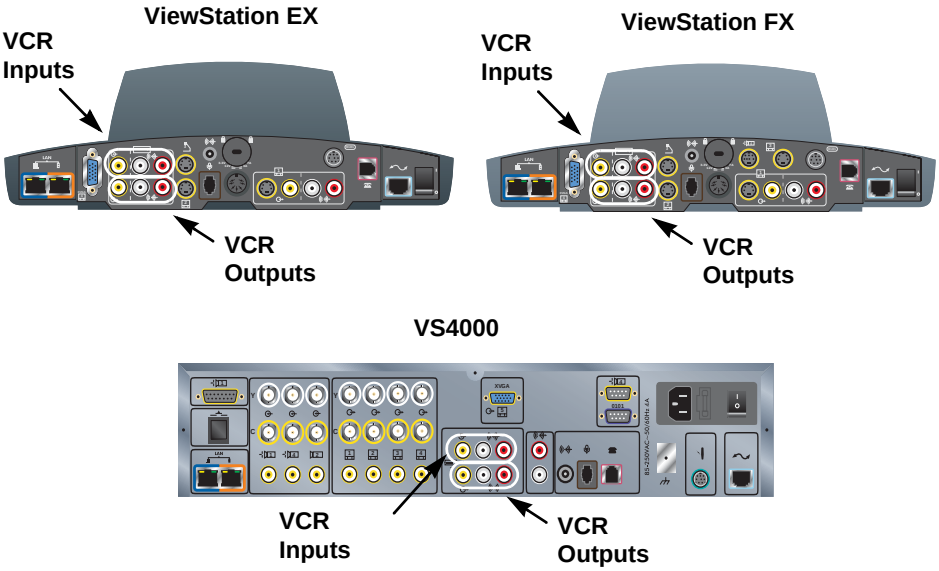
You can connect a VCR or DVD to play recorded material during a call or to record your videoconference. You can also connect two VCRs to play material and record the conference at the same time.

The VCR inputs are active when you select camera 3. You will need to configure the system to work with the VCR or DVD.



To connect a VCR to play:

1. Connect the yellow, red, and white VCR audio and video line out cables to the VCR inputs on the rear panel of the system.
2. Refer to the manufacturer's instructions for configuring the VCR.



To connect a VCR to record:

1. Connect the yellow, red, and white VCR audio and video line in cables to the VCR outputs on the rear panel of the system.
2. Refer to the manufacturer's instructions for configuring the VCR.

For more information about how to connect a VCR, refer to the setup sheet that came with your system.

Other Optional Components

You can add several other optional components to your system, such as those listed below. For more information, see your Polycom distributor.

- ❑ Touch panel — Allows you to operate the system with a touch panel rather than the remote control.
- ❑ VS4000 only: External infrared (IR) sensor — Allows you to install the system out of sight and use a camera that does not include a built-in IR sensor.
- ❑ Audio mixer — Lets you enhance the sound quality for calls in large rooms.

Polycom recommends using the Polycom Vortex line of products for installed audio.

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3

Configuring Network Use

This chapter lists the information you need to get your network ready for videoconferencing. Once you've gathered that information, you can begin configuring the system's network options. Details on how to perform this configuration are also included in this chapter.

When you power on your system for the first time, the setup wizard detects the system's IP and ISDN connections and leads you through the minimum configuration steps required to place a call.

If you need to change any of these initial settings to accommodate your organization's environment, you can manually adjust them using the screens described in this chapter.

Note that if you establish an administrator's password during the setup wizard, you will need to enter it each time you wish to change the Admin settings.

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Getting the Network Ready

Before you begin configuring the network options, you must make sure your network is ready for videoconferencing.

To begin, refer to the *Preparing Your Network for Collaboration* document, available at www.polycom.com/videodocumentation. This document contains information you need to prepare your network, such as worksheets that will help you order ISDN.

Network Connectivity Checklist

You will need this information to make and receive video calls at your site:

This information...	Should be provided by your...
IP address	Internet Service Provider or system administrator
System name	System administrator
Gatekeeper address	IP Network Service Provider or system administrator
Firewall information	IP Network Service Provider or system administrator
ISDN address (for BRI or serial V.35/RS-449/RS-530 capability)	ISDN Network Service Provider
SPIDs (BRI - North America only)	ISDN Network Service Provider
ISDN switch protocols	ISDN Network Service Provider

Using the Setup Wizard

When you power on your system for the first time, the setup wizard detects the system's IP and ISDN connections and leads you through the minimum configuration steps required to place a call. If you need more information about these steps, refer to the corresponding sections in this chapter.

The setup wizard allows you to set an administrator password, which lets you limit access to the Admin Settings. The administrator password may contain letters and numbers, but no other characters.

If you set an administrator password, make sure that you remember it. If you forget the password, you will have to reset the system, delete the system files, and run the setup wizard again in order to access the Admin Settings and reset the password.
You cannot set the administrator password from a remote location.

You can run the setup wizard or view the configuration screens in either of these two ways:

- **In the room with the system** — Use the remote control to navigate the screens and enter information.
- **From a remote location** — Use a web browser to access the system's web interface. To do this, you need to know the IP address of the system. Polycom recommends using Microsoft® Internet Explorer 6.0 or later.

You can use the web interface to configure all of the system settings except the remote management settings. These settings must be configured on the local system by an administrator.

To access the system using the web interface:

1. On a PC, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://255.255.255.255`, to go to the system's web interface.
3. Enter `admin` as the user name, and the admin password, if a password has been established.

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Configuring Video Call Preferences

To configure video call preferences:

1. Go to **System Info > Admin Setup > Video Network > Call Preferences**.
2. Configure these settings:

Setting	Description
ISDN Video Calls (H.320) (Quad BRI or PRI)	Allows users to place IDSN calls.
V.35 Video Calls (V.35/RS-449/RS-530)	Allows users to place V.35 calls.
LAN/Internet Calls (H.323)	Allows users to place IP calls.
Display IP Dialing Extension	Adds a field to the Video Phone screen so you can enter the H.323 extension separately from the gateway ID. If you choose not to add a field for the extension, users can either append the extension to the gateway number or use the Tone Pad to enter the extension when the gateway requests it.
Allow H.320 and H.323 Mixed Calls	Allows users to place and receive multipoint calls that include both IP and ISDN sites. This choice is available only if you allow both ISDN and LAN calls on this system. Unchecking this option provides extra security for systems requiring LAN connectivity while placing encrypted calls over ISDN lines. If you clear this selection, IP endpoints cannot join ISDN calls.

3. If you enabled both ISDN and IP calling, select **Next** and configure these settings:

Setting	Description
Primary Call Type Choice Secondary call Type Choice	Allows you to specify how to place calls to Directory entries containing multiple numbers. You can also specify a call type to use when the primary call type is not available. If you choose **Manual**, the system prompts the user to choose a call type.

Configuring IP Calling

Configuring LAN Support

If your system is part of a LAN, use this section to configure the system to work with the LAN.

To configure LAN support:

1. Go to **System Info > Admin Setup > LAN/H.323 > LAN/Intranet > LAN & Intranet.**
2. Configure these settings:

Setting	Description
Host Name	Indicates the system's DNS name. The LAN Host Name: • must begin with a letter and end with a letter or number • may include up to 63 letters, numbers, and hyphens • is not case sensitive. Note: If you change the Host Name, the system restarts.
WINS Resolution	Sends a request to the WINS server for WINS name resolution.
DHCP	Specifies how the system obtains an IP address. • **Client** — The system gets an IP address from the DHCP server on the LAN. The DHCP server also supplies the DNS server address, default gateway, subnet mask, and WINS server address. If the DHCP server is not available, the system cannot get an IP address. • **Off** — The IP address will not be assigned automatically. You must enter the IP address, DNS server address, default gateway, subnet mask, and WINS server address manually. • **Server** — The ViewStation FX or VS4000 system's internal DHCP server assigns up to 12 IP addresses to network devices. Assigned IP addresses range from 1.1.1.2 to 1.1.1.14. To use this option, you must enable it during a SoftUpdate. For more information, see Keeping your Software Current on page 3-28. Note**:** Do not use this setting if the ViewStation FX or VS4000 is connected to a LAN with a DHCP server. The setting will not take effect if the system is on a LAN with an active DHCP server. If the system has previously been configured as a DHCP server, it reverts to being a DHCP client when it is connected to a LAN and restarted.

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Setting	Description
IP Address	Displays the IP address currently assigned to the system. If the system does not automatically obtain an IP Address, enter the IP address here.
DNS Servers	Displays the DNS servers currently assigned to the system. If the system does not automatically obtain a DNS server address, enter up to four DNS servers here.
Default Gateway	Displays the gateway currently assigned to the system. If the system does not automatically obtain a gateway IP address, enter one here.
Subnet Mask	Displays the subnet mask currently assigned to the system. If the system does not automatically obtain a subnet mask, enter one here.
WINS Server	Displays the WINS server currently assigned to the system. If the system does not automatically obtain a WINS server IP address, enter one here.

To configure Advanced LAN properties:

1. Go to **System Info > Admin Setup > LAN/H.323 > LAN/Intranet > Advanced LAN Settings.**
2. Configure these settings:

Setting	Description
Select LAN Port	Specifies whether a PC is connected to this system. • **LAN Port** — No PC is connected to this system. • **PC Port** — A PC is connected to this system. If the videoconferencing system is connected to the LAN, the PC can also access the network.
LAN Speed	Specifies the LAN speed to use. Note that the speed you choose must be supported by the switch. Choose **Auto** to have the network switch negotiate the speed automatically. If you choose **10 Mbps** or **100 Mbps**, you must also select a duplex mode.
Duplex Mode	Specifies **Half Duplex** or **Full Duplex**. Note that the duplex mode you choose must be supported by the switch. Choose **Auto** to have the network switch negotiate the duplex mode automatically. The system restarts if you change this setting.

Configuring the System for Use with a Firewall or NAT

A firewall protects an organization's network by controlling data traffic from outside the network. Unless your firewall is designed to work with H.323 videoconferencing equipment, you must configure the system and the firewall to allow videoconferencing traffic to pass in and out of the network.

Network Address Translation (NAT) network environments use private internal IP addresses for devices within the network, while using one external IP address to allow devices on the LAN to communicate with other devices outside the LAN. If your system uses a NAT, it must be assigned a public IP address to communicate outside the LAN.

Systems deployed outside a firewall are potentially vulnerable to unauthorized access. Visit the Polycom Security Center at www.polycom.com for timely security information. You can also register to receive periodic email updates and advisories.

To set up the system to work with a firewall or NAT:

1. Go to **System Info > Admin Setup > LAN/H.323 > LAN/Intranet > Firewall/LAN Connection**.
2. Configure these settings:

Setting	Description
Use Fixed Ports	Lets you specify whether to define the TCP and UDP ports. This enables the ViewStation system to assign a range of ports starting with the TCP and UDP ports you specify. In most cases, the range begins with port 3230 for both TCP and UDP. Note: You must also open the firewall's TCP port 1720 to allow H.323 traffic.
TCP Ports UDP Ports	Lets you specify the beginning value for the range of TCP and UDP Ports used by the system. **Note**: You must also open the firewall's TCP port 1720 to allow H.323 traffic.
System is Behind a NAT	Lets you specify that the system obtains its IP address from the NAT. If users connect to this system using a Virtual Private Network (VPN), clear this field.
NAT is H.323 Compatible	Lets you specify that the system is behind a NAT that allows HTTP traffic.
Auto Discover NAT	Lets you specify whether the system should determine the NAT Public Address automatically. The system restarts if you change this setting.

Setting	Description
NAT Public (WAN) Address	Displays the address that callers from outside the LAN use to call your system. If you chose to configure the NAT manually, enter the NAT Public Address here. The system restarts if you change this setting.
Address Displayed in Global Address Book	Lets you choose whether to display this system's public or private address in the Global Address Book.

Specifying H.323 Settings

If your network uses a gatekeeper, the system can automatically register its H.323 name and extension. This allows others to call the system by entering the H.323 name or extension instead of the IP address.

To specify H.323 Settings:

1. Go to **System Info > Admin Setup > LAN/H.323 > H.323 > Setup**.
2. Configure these settings:

Setting	Description
H.323 name when calling this system	Specifies the name that gatekeepers and gateways use to identify this system. You can make point-to-point calls using H.323 names if both systems are registered to a gatekeeper. The H.323 Name is the same as the System Name, unless you change it. Your organization's dial plan may define the names you can use. Each system's name must be unique. The system restarts if you change this setting.
H.323 Extension (E.164)	Specifies the extension that gatekeepers and gateways use to identify this system. The default H.323 Extension is based on the system serial number, but it can be changed. Your organization's dial plan may define the extensions you can use. Each system's extension must be unique. The system restarts if you change this setting.
Auto H.323 Dialing	Lets the system automatically detect the call type based on the format of the dialing information you enter. The ISDN and IP fields are not displayed on the Video Phone screen.
Display IP Dialing Extension	Adds a field to the Video Phone screen so you can enter the H.323 extension separately from the gateway ID. If you choose not to add a field for the extension, users can either append the extension to the gateway number or use the Tone Pad to enter the extension when the gateway requests it.

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Configuring Dialing Speeds

Setting up dialing speeds lets you define the speeds users can choose when they make calls or add Directory entries.

To configure the dialing speeds available to users:

1. Go to **System Info > Admin Setup > LAN/H.323 > H.323 > Dialing Speeds**.
2. Select the call rates that users can choose for making calls.
   - Nx56 and Nx64 rates are available for ISDN calls.
   - IPx56 and IPx64 rates are available for IP calls.

Configuring the System to Use a Gatekeeper

A gatekeeper supervises network traffic and manages functions such as bandwidth control and admission control. The gatekeeper also handles address translation, which allows users to make calls using static aliases instead of IP addresses that may change each day.

To configure the system to use a gatekeeper:

1. Go to **System Info > Admin Setup > LAN/H.323 > H.323 > Gatekeeper**.
2. Configure these settings:

Setting	Description
H.323 Name	Specifies the name that gatekeepers and gateways use to identify this system. You can make point-to-point calls using H.323 names if both systems are registered to a gatekeeper. The H.323 Name is the same as the System Name, unless you change it. Your organization's dial plan may define the names you can use. Each system's name must be unique. The system restarts if you change this setting.
H.323 Extension (E.164)	Specifies the extension that gatekeepers and gateways use to identify this system. The default H.323 Extension is based on the system serial number, but it can be changed. Your organization's dial plan may define the extensions you can use. Each system's extension must be unique. The system restarts if you change this setting.

Setting	Description
Use Gatekeeper	Specifies whether to use a gatekeeper. Gateways and gatekeepers are required for calls between IP and ISDN networks. • **Off** — Calls do not use a gatekeeper. • **Specify** — Calls use the specified gatekeeper. Enter the gatekeeper's IP address or name (for example, `gatekeeper.companyname.usa.com`, or `255.255.255.255`). • **Auto** — System automatically finds an available gatekeeper. • The system restarts if you change this setting.
Gatekeeper IP Address	Displays the gatekeeper's IP address. If you chose to specify a gatekeeper, enter the IP address here. The system restarts if you change this setting.
Outbound Call Route	For systems using a gatekeeper, specifies whether calls initiated by this system should be handled as IP calls sent through a gateway or as ISDN.
Dial Multipoint Calls from PathNavigator	Lets you specify whether multipoint calls use the system's internal multipoint capability or the PathNavigator Conference on Demand feature. This feature is available only if the system is: • Configured for multipoint calling. • Registered with a PathNavigator gatekeeper.

Configuring the System to Use a Gateway

A gateway performs protocol conversion between IP and ISDN networks, so that users on different networks can call one another. If the system is configured to use a gateway, you must also configure it to use a gatekeeper.

To configure the system to use a gateway:

1. Go to **System Info > Admin Setup > LAN/H.323 > H.323 > Gateway**.
2. Configure these settings:

Setting	Description
Gateway Number Type	Specifies the number type users enter to call this system: • **Direct Inward Dial (DID)** — Users enter an internal extension to call this system directly. **Note**: If you choose this option, you must also register the number with the gatekeeper as an E.164 alias. • **Number + Extension** — Users enter the gateway number and the system's extension to call this system.
Country Code	Specifies the country code for the system's location.

Setting	Description
Area Code	Specifies the area or city code for the system's location.
Number	Specifies the gateway's number.
Extension	Specifies the extension that identifies this system for incoming gateway calls. The default H.323 Extension is initially based on the system serial number, but it can be changed.
Number of Digits in DID Number	Specifies the number of digits configured by your network administrator.
Number of Digits in Extension	Specifies the number of digits configured by your network administrator.

3. Select **Next** and enter a prefix or suffix for each bandwidth you want to allow for gateway calls.

Be sure to configure the gateway to use the same prefixes and suffixes you define for the system.

Specifying Quality of Service

Set the Quality of Service options for the way your network handles IP packets during video calls.

To specify the Quality of Service:

1. Go to **System Info > Admin Setup > LAN/H.323 > QOS**.
2. Configure these settings:

Setting	Description
Type of Service (ToS) Field	Lets you choose your service type.
Type of Service (ToS) Value	Specifies the value of the Type of Service (ToS) byte in the IP packet header for video, audio, and far-end camera control. These values are supported: Type of Service — Minimum Value — Maximum Value **IP Precedence**: 0 5 **Diffserv**: 0 63

Setting	Description
Dynamic Bandwidth	Specifies whether to let the system automatically find the optimum line speed for a call if packet loss occurs.
Enable PVEC	Allows the system to use PVEC (Polycom Video Error Concealment) if packet loss occurs.

Configuring ISDN Support

You can add one optional network interface module to the system. This lets you extend the functionality of the system so that you can:

- ❑ Make ISDN calls over a PRI/T1 network (in North America) or PRI/E1 (outside of North America).
- ❑ Make ISDN calls over a BRI network.
- ❑ Connect encryption or other third-party network equipment using a Serial V.35/RS-449/RS-530 interface.

This section describes the settings for all optional network interfaces and identifies the settings that are available only for specific network interfaces.

You can configure a network interface only if the corresponding network interface module is installed. The system automatically detects the module and displays only the required configuration screens.

Configuring Inverse Multiplexer (IMUX) Settings

You must configure the IMUX settings for Quad BRI and PRI only. If your system uses the V.35/RS- 449/RS-530 network interface, skip this section.

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To configure Inverse Multiplexer (IMUX) settings:

1. Go to **System Info > Admin Setup > Video Network > IMUX**.
2. Choose each icon and configure the settings on the corresponding screens:

Choose...	Then do this...
Numbers	**1.** Specify the area code for this system's location. **2.** Specify the numbers assigned to the B1 and B2 channels for each line. The two numbers for a line may be the same or different, depending on the switch protocol in use.
SPIDs (for Quad BRI with NT-1 device only)	**1.** If the system is on a PBX, select PBX. You will not need to do any further configuration on this screen. Note: The PBX selection is not available on the web interface. If you are configuring the system from the web interface, and the system is on a PBX, skip this screen. **2.** If the system is not on a PBX, and you have configured ISDN switch protocol to be AT&T 5ESS Multipoint, NI-1, or Nortel DMS-100, specify the system's SPIDs. The system then verifies the numbers. If the system is unable to verify the SPIDs, make sure the system is connected and that the ISDN numbers you entered are correct. If the system is located in the United States or Canada, you can have the system detect the SPIDs automatically. **3.** Select **Start.**
Audio Quality	Specify the minimum bandwidth allowed for calls using the G.722 algorithm. All calls below this bandwidth use the G.728 algorithm.
Advanced Dialing	Specify whether to dial the ISDN channels all at once or one at a time. If you choose to dial channels one at a time, each channel is dialed only after the previous channel connects Use this setting if you experience problems dialing all channels at once.
Dialing Speeds	Select the call rates that users can choose for making calls. • Nx56 and Nx64 rates are available for ISDN calls. • IPx56 and IPx64 rates are available for IP calls.

Configuring the Quad BRI Network Interface

To configure the ISDN Network settings:

1. Go to **System Info > Admin Setup > Video Network > ISDN Network**.
2. Configure these settings:

Setting	Description
Country Code	Specifies the country code for this system's location.
Area Code	Specifies the area code or STD for this system's location.
Number A Number B	Specifies the primary and secondary ISDN numbers assigned to this system.
ISDN Switch Protocol	Specifies the ISDN switch protocol used by the network. Contact your ISDN network service provider for this information.
ISDN Dialing Prefix	Specifies the number to dial to access numbers outside the PBX. If the system is not located on a PBX, leave this field blank.

Configuring the PRI Network Interface

To use the PRI network interface, you must configure the following:

- ❑ PRI network support
- ❑ PRI channels
- ❑ PRI information

Your ISDN service provider can tell you which protocol your network uses. If you later change the country setting, the PRI switch protocols available may also change, and you may be prompted to configure a different PRI switch protocol.

To set up PRI network support:

1. Go to **System Info > Admin Setup > Video Network > IMUX > PRI Network > PRI Setup.**
2. Configure these settings:

Setting	Description
Line Signalling	Specifies the framing format in use. This setting is configurable for PRI E1, read-only for PRI T1.
CSU (PRI T1 only)	Specifies whether this system uses an external or internal Channel Service Unit (CSU).
Line Build Out (PRI T1 only)	For systems using an internal CSU, indicates the output attenuation in dB. Your service provider can provide you with these values. For systems using an external CSU, indicates the length (in feet) of the RJ-45 cable that connects the PRI network interface module to the CSU.
Switch Protocol	Specifies the Network switch protocol. The available choices are determined by the system's country settings. This setting is read-only for PRI E1, configurable for PRI T1.

3. Select **Advanced PRI Setup** and configure these settings:

Setting	Description
Restore Default	Resets all values on this screen. This does not affect other PRI settings.
Numbering Plan	Select the appropriate numbering plan for your location, if it differs from the default.
International Dialing Prefix	Specify the dialing prefix needed for international calls.
Call-by-Call	Specifies a code that the system sends to the telephone company switch to request a special service, if such a code is required. Consult your telephone service provider to determine the proper call-by-call value.

To configure the PRI channels:

1. Go to **System Info > Admin Setup > Video Network > IMUX > PRI Network > PRI Status.**
2. Select a channel to activate or deactivate it. Active channels are represented by a green icon, and inactive channels are represented by a gray icon.

Channels should be activated and deactivated only by a knowledgeable network professional.

To access PRI Information:

1. Go to **System Info > Admin Setup > Video Network > IMUX> PRI Network > PRI Information**.
2. You can view the following read-only information:

Setting	Description
PRI Line Type	Displays read-only information about the system and its configuration.
Number of Active Channels	
D Channel Location	
Network Mode	
Clock Source	
Terminal Endpoint ID (TEI)	
Line Termination (PRI E1 only)	

Configuring the Serial V.35/RS-449/RS-530 Network Interface

To use the serial network interface for the system, you may need to configure the following:

- ❑ Video network settings
- ❑ Network control signals
- ❑ Calling profile
- ❑ Broadcast Mode
- ❑ Dialing speeds
- ❑ Crypto Resync

To configure serial video network settings:

1. Go to **System Info > Admin Setup > Video Network > Video Network.**
2. Configure these settings:

Setting	Description
RS-366 Dialing	Allows users to dial calls from this system. Uncheck this box if this is a dedicated connection or if another device is used for dialing calls.
V.35 Ports Used	Specifies whether one or two lines are connected.
Dialing Protocol	Specifies the protocol used by this system.
Broadcast Mode	Enables support for H.331 broadcast transmissions from this system. This enables the system to send video and audio to many other system, such as large satellite networks.

To configure serial interface control signals:

The system can provide standard or inverted signal polarity. Refer to the documentation supplied with the device you have connected to the V.35/RS-449/RS-530 network interface module to determine whether you need to change signal polarity. Do not change signal polarity unless your equipment requires it. Incorrect signal polarity settings will prevent the equipment from working properly.

1. Go to **System Info> Admin Settings > Video Network > Advanced V.35**.
2. Configure these settings:

Setting	Description
ST	Lets you specify the signaling required by the external device connected to the system. Specify normal or inverted, as appropriate. In most cases, normal signaling is appropriate.
RT	
RTS	
DCD	
CTS	
DTR	
DSR	

To choose a calling profile for the connected equipment:

1. Go to **System Info > Admin Setup > Video Network** and enable **RS-366 Dialing**.
2. Select **Advanced Dialing** and configure these settings:

Setting	Description
Prefix	Lets you specify the dialing prefix required to reach an outside line.
Calling Profile	Lets you specify what data communications equipment is connected to the network interface. The system automatically displays the default prefixes, suffixes, and calling speeds required by that device. If your device is not listed, choose Custom.
Speed	Lets you define the prefixes or suffixes to use for each speed used in a Custom Calling Profile. For information about required prefixes and suffixes, see the documentation that came with the device. If you choose a predefined Calling Profile, this information is supplied for you.

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To configure Broadcast Mode settings:

1. Go to **System Info > Admin Setup > Video Network > Video Network** and enable **Broadcast Mode**.
2. Select **Broadcast Mode Setup** and configure these settings:

Setting	Description
Video Format	Specifies the resolution at which video is transmitted.
Video Protocol	Specifies the protocol used to transmit video. Choose the lowest protocol supported by all systems in the conference.
Audio Mode	Specifies the protocol used to transmit audio,
Frame Rate	Specifies the frame rate to use.

In Broadcast Mode, the system sends and receives audio and video without handshaking with the far end systems. This enables the system to send transmissions to many systems at once, such as satellite networks. In this mode, the system does not receive audio and video from all far site systems.

To select dialing speeds:

1. Go to **System Info > Admin Setup > Video Network** and enable **RS-366 Dialing**.
2. Select **Dialing Speeds** and select the call rates that users can choose for making calls.
   - Nx56 and Nx64 rates are available for ISDN calls.
   - IPx56 and IPx64 rates are available for IP calls.

To configure crypto resync:

1. Go to **System Info > Admin Setup > Security > Crypto Resync.**
2. Configure these settings:

Setting	Description
Crypto Resync	Allows a system connected to cryptographic equipment to signal when it loses video synchronization during a call. The cryptographic equipment can then resynchronize with the far end. When this option is enabled, the resynchronization pulses are sent out on the RTS signal. To use this option, the cable to your cryptographic equipment should route the V.35/RS-449/RS-530 network interface module's RTS signal to the appropriate resync input on the cryptographic equipment.
Time Between Pulses (sec)	Specifies the time between resync pulses in seconds.
Pulse Width (millisec)	Specifies the pulse duration in milliseconds.

You may need to use crypto resync when you connect a cryptographic coder/decoder between the system and the network. This allows the system to signal the cryptographic device when video synchronization is interrupted.

Configuring the Global Address Book

If your organization uses the Polycom Global Management System, you can configure your system to use the Global Address Book. The Global Address Book provides a list of other systems that are registered with the Global Directory Server, and available for calls. The other systems appear in the Address Book, allowing users to place calls to other users by selecting their names.

Configuring the Global Address Book Server Settings

To configure the Global Address Book Server settings:

1. Go to **System Info > Admin Settings > LAN/H.323** > **Global Address > Server**.
2. Configure these settings:

Setting	Description
Server IP Address	Specifies the IP address or DNS name of the Global Address Book Server.
Server Password	Lets you enter the Global Directory password, if there is one.
Connected	Indicates whether the system is connected to the Global Address Book Server.
OneDial Available	Indicates whether the Polycom OneDial feature can be used.
Display Global Addresses	Displays other registered systems in this system's Global Address Book.
Register This System When Powered On	Specifies whether to display this system's name in the Global Address Books of other registered systems.

Setting Global Address Book Preferences

The available display and dialing preferences are determined by the call types and gatekeepers configured for this system. Depending on how your system is configured, you may not see all of the settings described in this section.

To set the Global Address Book preferences:

1. Go to **System Info > Admin Settings > LAN/H.323** > **Global Address > Preferences**.
2. Configure these settings:

Setting	Description
Show Addresses in Address Book	Lets you specify whether to show IP addresses, ISDN addresses, or both in the Address Book. You can choose from the call types you specified on the Video Call Preferences screen.
Maximum Line Speed for Global Addresses	Specifies the line speeds to use for calling the Global Address Book numbers displayed in this system's Address Book. You can set a different speed for each type of address. These settings do not apply to local entries you add to the Address Book on this system.
Preferred Alias (E.164)	Specifies the numeric extension or telephone number that you want outside systems to use to reach this system. This option is only available if you have registered your system with a Gatekeeper and the Global Address Book server. To select the Preferred Alias: **1.** Select this field to display the Preferred Alias screen. **2.** Select the alias you want to register with the Global Directory Service. Your choices are determined by the Gateway Number Type configured for this system: **Gateway Number Type** — **Possible Alias** Direct Inward Dial (DID) — ISDN number (for native ISDN) Full DID number DID number provided by switch DID extension H.323 extension Number + Extension — ISDN number (for native ISDN) H.323 extension

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3. Select OneDial Preferences and configure these settings:

Setting	Description
Primary Call Type Choice Secondary call Type Choice	Allows you to specify how to place calls - IP or ISDN. For Directory entries containing both IP and ISDN numbers, the system places the type of call you have specified as the primary call type. You can specify a call type to use when the primary call type is not available, or you can specify **None** if you wish users to place calls only by IP or only by ISDN. If you choose **Manual** for the primary call type, the system prompts the user to choose a call type.

Polycom OneDial™ simplifies placing videoconferencing calls by negotiating bandwidths, determining alternate routing, and allowing conference on demand. Your system must be configured to use PathNavigator to use OneDial calling.

Configuring the System for Use on a Private Network

The Private Network ISDN Number provides a second number that can be used to call the system. If an organization's PBX has two different lines coming from different network providers, the Private Network Number identifies the additional lines needed after the first line connects.

The Private Network Number can also signal the PBX to route additional calls through the PBX instead of going outside the PBX through the trunk line.

Some PBX systems signal the same called number regardless of the number used to call an endpoint. In this situation, the private number method may not work.

To configure the system for a Private Network:

1. Go to **System Info > Admin Setup > LAN/H.323 > Global Address > Private Net**.
2. Enter the Private Network Numbers for each line.

Setting the Dialing Rules

If your system is connected to your organization's private network and also to a public network, you may need to specify the codes and prefixes necessary for dialing other systems. If your system is connected only to a public network, you do not need to enter any dialing rules.

When you define dialing rules, your system's Address Book can display dialing information about other videoconferencing systems correctly, including all of the numbers, area codes, country codes, and international dialing access codes necessary for making calls from this system. For example, if your system is in Melbourne, the Address Book displays the correct numbers and codes for dialing systems in Paris, New York, and Cape Town, just as they should be dialed from Melbourne.

When you place a call using the Global Address Book, your system chooses the call type using these guidelines:

If You Call From This Network:	To This Network:	Your System Places the Call Using:
Public Network	Public Network	Public Network
Public Network	Private Network	Public Network
Private Network	Public Network	Public Network
Private Network	Private Network	Private Network

To set the dialing rules:

1. Go to **System Info > Admin Setup > LAN/H.323 > Global Address > Dialing Rules 1**.
2. Configure these Dialing Rules:

Setting	Description
Number of Digits in Extension	Specifies the number of digits in the extension used to call other systems with the same area code (or city code) and prefix. For example, if your system's number is 1-512-555-1212 and you can call a system at 1-512-555-1214 by entering 51214, your extension has 5 digits. Leave this field blank if the system is not connected to a PBX.
International Dialing Prefix	Specifies the prefix to use for placing international calls. This prefix is automatically added to international calls made from the Global Directory. Note that this overrides the international dialing prefix for the country specified in **System Info > Admin Setup > General Settings > Country**.

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Setting	Description
Public Network Access	Allows your system to use a public network for making calls.
Public Network Dialing Prefix	Specifies the prefix required by your PBX for calls that use the public network. This prefix is automatically inserted before dialing public network numbers from the Global Directory.
Public Network (same area code) Prefix	Specifies the prefix to use for public network calls between systems in the same area code.
Private Network Access	Allows this system to use a private network for making calls. When you enable private network access, the Global Address Book displays private network numbers for all systems that also allow private network access.
Private Network Dialing Prefix	Specifies the prefix to use to call another system on the same private network.

3. Go to **System Info > Admin Setup > LAN/H.323 > Global Address > Dialing Rules 2**:

Setting	Description
If Area Code = ___ Dial Prefix ___	Lists the prefix to use in place of the area code specified.
Always Dial Area Code	Specifies that calls to sites in the same area code must include the area code.
Dial 1+ for all USA calls	Specifies that calls to systems in the United States must include a "1" before the area code.

Placing a Test Call

When you finish configuring the system, you may wish to place a call to test your setup.

You can find a list of worldwide numbers that you can use to test your system at www.polycom.com/videotest.

To place a test call:

1. Select **Video Call** from the main screen.
2. Enter the ISDN number, system name or IP address.
   To enter text, press **Keyboard** to access the onscreen keyboard.
3. Enter a second ISDN number, if necessary.
4. Select the call type.
5. Select the call speed.
6. Press **Call-Hang Up** on the remote control.

If you have trouble making video calls:

- ❑ Make sure the number you dialed is correct, then try the call again. For example, you may need to dial 9 for an outside line or include a long distance access code or country code.
- ❑ To find out if the problem exists in your system, ask the person you were trying to reach to call you instead.
- ❑ Find out if the system you are calling has its power turned on and is functioning properly.
- ❑ If you can make calls but not receive them, make sure that your system is configured with the correct number.

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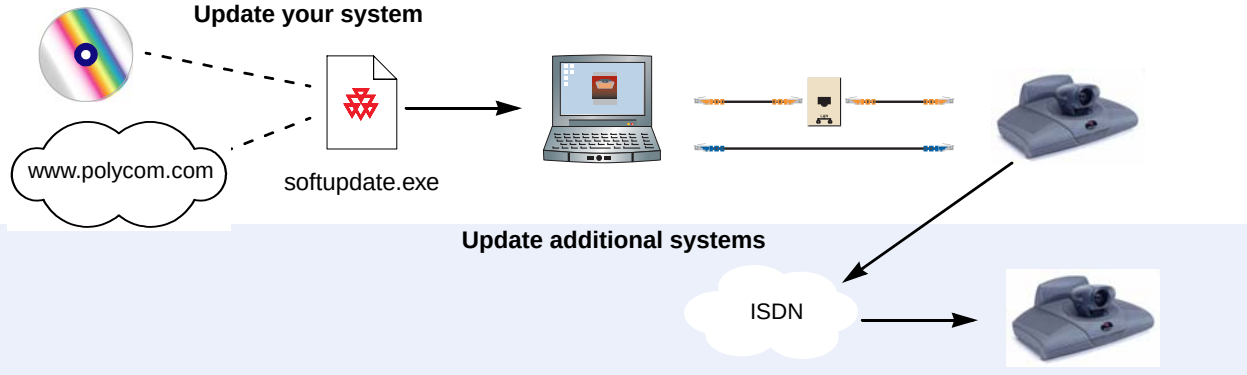
Keeping your Software Current

If you have Internet access, you can use the web-based Softupdate application to upgrade the system software. If you do not have Internet access, your reseller can supply you with the updated software on CD-ROM.

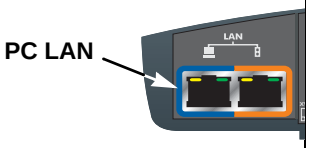
Before you begin, read the *Release Notes*, available at www.polycom.com/videosoftware, for the latest information about your software version.

The following diagram shows the overall process of updating software.



The following table describes how to update your system.

To complete this task...	In this way...	Do this:
Install the software update application on a computer	From the software CD	Place the CD in your computer's CD drive.
	From the web	**1.** Open a browser and go to www.polycom.com. **2.** Go to the Software Downloads area and navigate to your product. **3.** Select the appropriate **Release Code**. **4.** Log in to the Polycom Resource Center. **5.** Navigate to the ViewStation EX, FX, and VS4000 Downloads and select the current software release. **6.** When the system prompts you to open or save the file, click Save. **7.** In the Save As window, click Save to place the .zip file on your desktop, or specify where to save it. **8.** Open the .zip file and extract softupdate.exe.

To complete this task...	In this way...	Do this:
Connect to the system  	From your organization's LAN	Verify that the computer and the system are both connected to the LAN - for example, by opening a command line on the computer to ping the system.
	Directly to a system on a LAN	Connect a LAN cable from the computer's LAN port to the system's PC LAN connector, shown at the left.
	Directly to a system that is not on a LAN, configuring static IP addresses manually	**1.** Connect a LAN cable from the computer's LAN port to the system's PC LAN connector, shown at the left. **2.** On the system, select **System Info > Admin Setup > LAN/H.323 > LAN/Intranet > LAN & Intranet**. **3.** In the **DHCP** field, select **Off**. **4.** Enter the following: IP Address: `1.1.1.2` Default Gateway: `1.1.1.1` Subnet Mask: `255.255.255.0` **5.** Configure your computer to use a static IP address: IP Address: `1.1.1.3` Subnet Mask: `255.255.255.0`
	Directly to a system that is not on a LAN, configuring the system to provide the computer's IP address To use this method, the system must have been configured as a DHCP server during the previous software update.	**1.** Connect a LAN cable from the computer's LAN port to the system's PC LAN connector, shown at the left. **2.** On the system, select **System Info > Admin Setup > LAN/H.323 > LAN/Intranet > LAN & Intranet**. **3.** In the **DHCP** field, select **Server**. When the system displays the confirmation message, select Yes. **4.** When you navigate out of this screen, the system displays a message asking if you want to save the changes. Select **Yes** to save the changes and restart the system. **Note: Do not use this setting if the ViewStation FX or VS4000 is connected to a LAN with a DHCP server.** **The setting will not take effect if the system is on a LAN with an active DHCP server.** **If the system has previously been configured as a DHCP server, it reverts to being a DHCP client when it is connected to a LAN and restarted.**

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To complete this task...	In this way...	Do this:
Update the system's software	From the computer	**1.** Start the **Softupdate.exe** application. **2.** Enter the system's IP address. **3.** If necessary, enter the system's administrator password. **4.** If you wish to delete the system's Address Book, select **Remove Address Book Entries**. **5.** If you wish to restore the factory settings during the update, select **Remove System Files**. This clears information such as the system name and network configuration settings. **6.** If the system is not connected to a LAN and you wish to allow it to issue an IP address to the computer, select **Allow System to be a DHCP Server**. **Note: Do not use this setting if the ViewStation FX or VS4000 is connected to a LAN with a DHCP server.** **The setting will not take effect if the system is on a LAN with an active DHCP server.** **If the system has previously been configured as a DHCP server, it reverts to being a DHCP client when it is connected to a LAN and restarted.**
Update ISDN systems at other sites	From the updated system **Note: You will need the administrator password and the software update password for each system that you update.**	**1.** From the updated system, place an ISDN call to another ViewStation EX, ViewStation FX, or VS4000 system. **2.** After the call connects, go to the main screen and select **System Info > Admin Setup**. **3.** Enter the administrator password (if any) and select **Software/Hardware > Update**. **4.** Select **Start**. If the system prompts you for the far site's password, enter it and select **Start** again. The call ends when the data transfer is complete. The far-site system takes about four minutes to rewrite its system files and restart.

Do not power off the system during the software upgrade process. If the upgrade is interrupted, the system may lose its system files. If this happens, you will need to do the software upgrade again and run the setup wizard to configure the system.

4

Designing the User Experience

Every organization has users with different needs. You can customize the behavior of the system and build in various access levels for your users, depending on how much or how little you want them to change system behaviors.

When you set up the system for the first time, the system is configured with the most commonly used settings. If you need to change any of these initial settings, you can adjust the screen settings as described in this chapter.

If you established an administrator's password during the initial configuration, you must enter it each time you change advanced settings.

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Managing User Access to Settings and Features	4-2
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Managing User Access to Settings and Features

You can manage user access to settings and features by using passwords and by configuring the system to show only those options you want your users to see.

To maintain this security level...	You can allow users to...
High	Call only the numbers you specify in the Address Book.
Medium	Make changes to common user preferences by allowing access to the User Setup screen. See Letting Users Customize the Workspace on page 4-4. Place calls using the restrictions you specify for length of call, type of call, and use of the Address Book. See Limiting What Users Can Do With the System on page 4-5.
Low	Configure all system settings. If you choose not to set an Admin Password, users will have access to all system settings.

Setting the Admin Password

You set an administrator's password to restrict who can:

- ❑ Make changes other than those in the User Settings screen
- ❑ Update the software
- ❑ Perform remote management using the web interface

To set or change the Admin Password:

1. Go to **System Info > Admin Setup > Security.**
2. Enter or change the admin password.

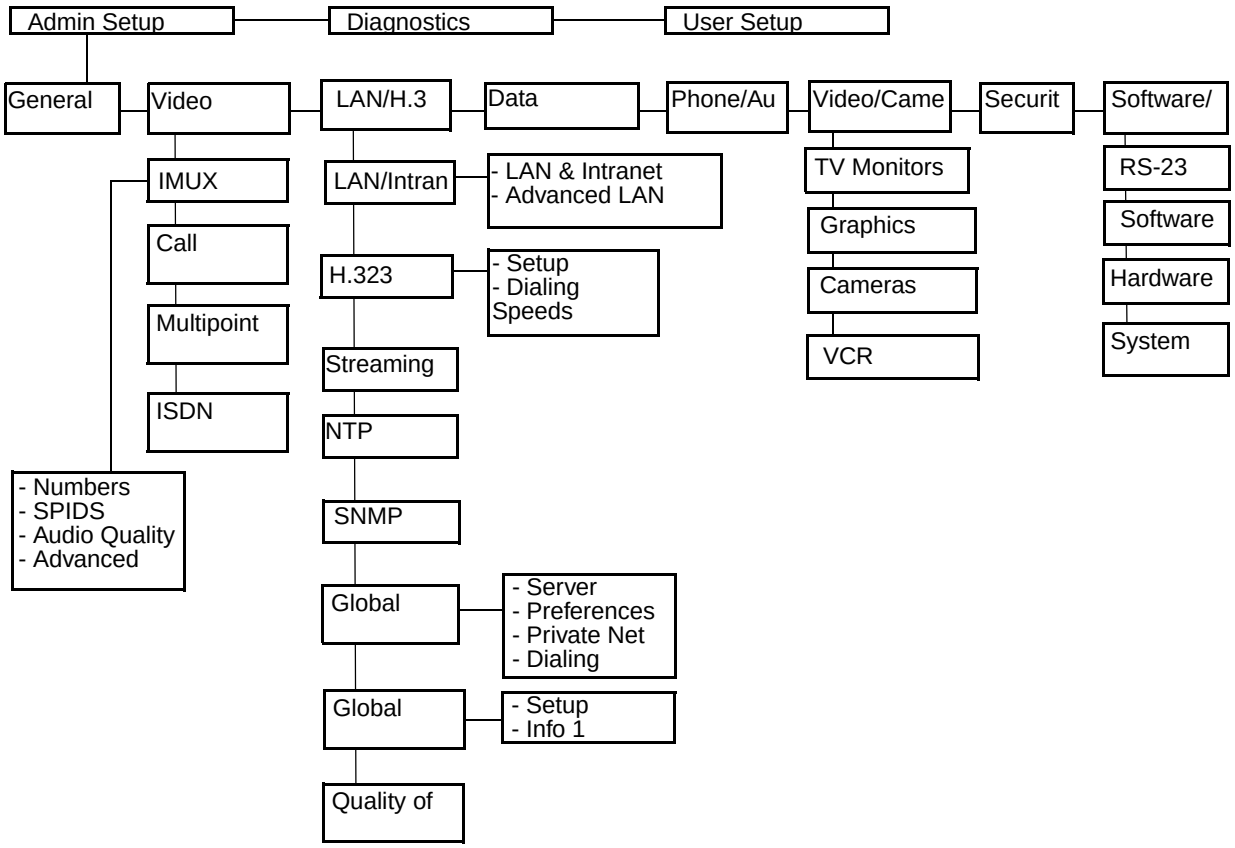
To reset a forgotten Admin Password:

1. Get the system's serial number from the system or from the System Information screen.
2. Go to **System Info > Diagnostics > Reset System**.
3. Enter the system's serial number and select **Delete System Files**.
4. Select **Reset System**.

When the system completes the reset, it leads you through the setup wizard. You can enter a new Admin Password when you set up the system.

Screens that Require the Admin Password for Access

The following diagram shows top-level system screens for the ViewStation system. All screens within Admin Setup require the administrator's password.



Letting Users Customize the Workspace

You can allow users to change common user preferences by providing access to the User Setup screen.

1. Go to **System Info > Admin Setup > General Setup**, then select .
2. Check the **Allow User Setup** option to make the **User Setup** option available to users on the **System Info** screen.

User Setup includes the following options:

- ❑ Auto-Answer Point to Point
- ❑ Auto-Answer Multipoint
- ❑ Mute Auto-Answer Calls
- ❑ PIP adjustment
- ❑ Far Control of Near Camera
- ❑ Backlight Compensation
- ❑ Allow Remote Monitoring
- ❑ Meeting Password
- ❑ Far Site Name Display Time
- ❑ Multipoint Mode

Some of these options are also available to administrators on the Admin Settings screens.

Limiting What Users Can Do With the System

You can limit what you allow users to do with the system by configuring the following:

- **Maximum time in call** — Go to **System Info > Admin Setup > General Setup** and specify the maximum call length allowed.
- **Allow Dialing** — You can prevent users from making calls to destinations other than those listed in the Address Book. Go to **System Info > Admin Setup > General Setup** and clear the **Allow Dialing** option. Users can make calls from the Address Book but cannot access the Video Phone screen to enter other video numbers.
- **Allow H.320 and H.323 Mixed Calls** — If you do not want to allow mixed protocol calls on your system, go to **System Info > Admin Setup > Video Network > Call Preferences**, and clear this option.
- **Allow Address Book changes** — If you do not want users to save changes to the local address book of the system, go to **System Info > Admin Setup > General Setup** and clear this option.
- **Allow Modifications to Camera Presets** — If you have set presets on the sytem and you do not want users to change or delete them, go to **System Info > Admin Setup > General Setup** and clear this option.

Designing Video and Audio Behaviors

You can configure the following video and audio behaviors to accommodate your environment:

- Camera Settings
- TV Monitors
- Content Display
- VCR Options
- Telephone and Audio Settings
- Touch Panel Control Settings
- Displaying Closed Captions

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Configuring Camera Settings

The Cameras screen lets you specify camera settings, as appropriate for the equipment you are using.

To configure camera settings:

1. Go to **System Info > Admin Setup > Video/Cameras > Cameras**.
2. Configure these settings:

Setting	Description
Far Control of Near Camera	Specifies whether the far site can control the position of the near-site camera. When this option is selected, a user at the far site can control the framing and angle of the camera for the best view of the near site.
Backlight Compensation	Specifies whether to have the camera automatically adjust for a light background. Backlight compensation is best used in situations where the subject appears darker than the background.
Enable Snapshot	Allows users to take snapshots, using the remote control, during calls.
Snapshot Camera	Lets you specify the camera that is used to take snapshots during calls.
Camera Direction	Specifies the direction the camera moves when using the arrow buttons on the remote control.
Primary Camera	Specifies which camera is the main camera.
High Resolution Cameras	Lets you specify which cameras are high resolution cameras. If you are using a document camera or a VCR, choose high resolution for crisper images.

To set up cameras (VS4000 only):

1. Go to **System Info > Admin Setup > Video/Cameras > Cameras > VS4000 Camera Setup.**
2. Specify the following camera settings for each camera you are connecting to the VS4000:
   - Camera number
   - S-video or composite connection
   - Pan/Tilt/Zoom capability

You can connect four cameras to your VS4000 system. Up to three cameras can use S-video. Two cameras can be set for pan/tilt/zoom capability.

Configuring TV Monitors

The system allows you to customize displays to suit your room and equipment configuration, including choosing the monitor for presenting content.

To configure TV monitors:

1. Go to **System Info > Admin Setup > Video/Cameras > TV Monitors**.
2. Configure these settings:

Setting	Description
Display Icons in a Call	Specifies whether to display all on-screen graphics, including icons and help text, during calls.
Snapshot Timeout	Lets you choose whether to have snapshots and slides time out, after a period of four minutes, and return to live video. Do not select this option if you want the user to control the return to live video by pressing the Near button on the remote control.
Number of Monitors	Specifies the number of monitors connected to the system.
PIP	Specify PIP (Picture-in-Picture) behavior: • **On** — The PIP window stays on for the duration of the call. • **Off** — The PIP window is not displayed during the call. • **Auto** — The PIP is displayed when a user picks up the remote. **Note:** PIP settings are also available in the User Settings screen.
60 fields/sec at >=512Kbps: (Wide Screen Video)	Specify whether to use the wide screen video option for calls using bandwidth of 512Kbps or more.

Configuring the Content Display

You can configure the ViewStation system to display content on a TV monitor or a high-resolution display.

To configure the content display:

1. Go to **System Info > Admin Setup > Video/Cameras > Graphics Monitor**.
2. Configure these settings:

Setting	Description
TV Monitor	Specify that video and content is displayed on the main TV monitor connected to the system.
FX VGA	Specify the following settings for high-resolution content display if you have a VGA monitor or projector connected to the system: • **VGA Output with No Graphics** — Specify screen appearance when there is no content to display. • **VGA Resolution** — Specify the VGA resolution for your monitor. The system allows you to specify up to 1280 x 1024 resolution. Select the maximum VGA resolution that your monitor or projector can support. Consult the user manual provided with the VGA monitor or projector for this information.
VCFX VGA Display	Specify the required behavior if you have a VGA monitor or projector connected directly to the Visual Concert FX unit: • **Send content when PC connected** — Specifies whether to send content automatically when the PC is connected to the Visual Concert FX unit. If this option is not selected, the presenter sends content to all sites by pressing the Play button on the Visual Concert FX unit. • **View with VCFX VGA Display** — Specifies whether to display the content locally on a VGA display device connected to the Visual Concert FX unit. Presenters can use to this option to view content locally for the duration of the call.

If you change Graphics Monitor settings during a call while content is being sent, you will not see the content at the local site unless you stop and restart the content stream by pressing **Play** on the Visual Concert FX unit.

To configure VGA Input Calibration:

1. Go to **System Info > Admin Setup > Video/Cameras > VGA Input**.
2. Configure these settings:

Setting	Description
Phase	Lets you calibrate the VGA input by increasing or decreasing the phase.
Horizontal Position	Allows you to adjust the horizontal position of the frame.
Vertical Position	Allows you to adjust the vertical position of the frame.

This screen is only available when the Visual Concert FX unit is connected to the system.

Configuring a VCR to Record Calls

You can connect a VCR or DVD to play recorded material during a call or to record your videoconference. You can also connect two VCRs to play material and record the conference at the same time.

No system configuration is required before playing a VCR into a call.

To configure call recording with a VCR:

1. Go to **System Info > Admin Setup > Video/Cameras > VCR**.
2. Configure these settings:

Setting	Description
VCR Record Source	• **Auto** — Automatically records the current speaker. • **Near** — Records the near site video only. • **Far** — Records the far site video only. **Note:** Audio from all sites is always recorded.
VCR Audio Out Always On	Species how the audio output behaves. When this setting is disabled, the system supplies audio to the VCR audio outputs only when the system is receiving audio from the far site. If you use a VCR to record the conference, enable this setting so that the audio from the near-site microphone pods and data collaboration control are recorded along with the far-site audio.

For information about connecting a VCR to play or record, please refer to Optional Equipment Setup for VCR on page 2-23.

The VCR inputs are active when you select camera 3.

Configuring Telephone and Audio Settings

1. Go to **System Info > Admin Setup > Phone/Audio.**
2. Configure these settings:

Setting	Description
System Telephone Number	Specifies the phone number of the system, including country and area codes for the system's location. If you do not select System Telephone Number, the Telephone selection is not available from the main screen.
Room Phone Number	Enter the telephone number of the room where the system is located.
Echo Canceller	Lets you specify whether to use the system's built-in echo canceller. Note: If you are using a Polycom Vortex® system with your ViewStation system, and you want to use to the Polycom Vortex echo cancellation feature, clear this selection.
Mute Auto-Answer Calls	Selects whether to mute incoming calls. Incoming calls are muted by default until you press the mute button on the microphone pod or the remote control.
Sound Effects Volume	Sets the volume level of the ring tone and user alert tones.
Audio Quality	Specifies the audio quality preference depending on call bandwidth.

Configuring for Use with a Touch Panel Control

1. Go to **System Info > Admin Setup > Software/Hardware > RS-232**.
2. Configure these settings:

Setting	Description
Baud Rate	Set the baud rate to the same value that it is set on the touch panel control.
RS-232 Mode	Select Control. This allows any device connected to the RS-232 port to control the system.
Flow Control	Set this to match the touch panel control.

For a list of all available API commands, see the *API Guide for ViewStation EX, ViewStation FX, and VS4000*, available at www.polycom.com/videodocumentation.

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Displaying Closed Captions

You can provide real-time text transcriptions or language translations of the video conference by displaying closed captions on your system. When you provide captions for a conference, the captioner uses a web browser to listen to the conference audio and enter the caption text in the system's web interface. When the captioner sends a unit of text, all sites see it on the main monitor for 15 seconds. The text then disappears automatically.

Closed captions are supported for IP or ISDN point-to-point calls between these systems:

- ViewStation SP, MP, V.35/RS-449/RS-530 systems with software version 6.5 or later
- ViewStation FX or VS4000 with software version 2.5 or later

To supply closed captions for a conference:

1. On a PC, open a web browser.
2. In the browser address line, enter the IP address of the system, for example, `http://255.255.255.255`, to go to the system's web interface.
3. Click **Show Closed Caption**.
4. Log in using this information:

   User Name: Your name.

   Password: Meeting password defined for your video conferencing system.
5. In the Closed Captioning screen, type the caption text into the **Current** field.

   You can enter up to 250 characters per line.
6. Press **Enter** to send the text to the sites in the conference.

   The text is also added to the **History** field of the Closed Captioning screen.

Configuring Data Conferences and Streaming Calls

Configuring Data Conferences

ViewStation systems support data conferencing for:

- ❑ point-to-point ISDN calls, and
- ❑ multipoint calls using external H.320 bridges that support this feature.

You can configure your ViewStation system to work with other data conferencing devices, such as ShowStation, WebStation, and StreamStation. You can also configure the ViewStation system to work with Microsoft NetMeeting.

To configure a data conference:

1. Go to **System Info > Admin Setup > Data Conference**.
2. Enter the IP address of the data conferencing device, or the IP address of the PC on which NetMeeting is running.

For detailed instructions on setting up NetMeeting for calls, please refer to the *Getting Started Guide for ViewStation EX, FX, and VS4000*.

Configuring and Starting Streaming Calls

You can stream audio and video from one to many viewers with your ViewStation system, both in and out of a call. Viewers watch your presentation or meeting, via the system's web interface, from their PC.

To configure a stream:

1. Go to **System Info > Admin Setup > LAN/H.323 > Streaming**.
2. Configure these settings:

Setting	Description
Speed	Specifies the speed used for the streaming call.
IP Multicast Address	Specifies the multicast address used for the stream. The default address is based on your system serial number but can be changed, if required.

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Setting	Description
Number of Router Hops	Specifies the number of routers the data can traverse before it is no longer passed on. For example, when set to 1, the data stays within a subnet.
Audio Port	Specifies the fixed port used for audio. This can be changed if you need to go through a firewall.
Video Port	Specifies the fixed port used for video. This can be changed if you need to go through a firewall.
Allow Streaming	Adds the Call Type icon to the main screen. By selecting **Call Type > Streaming Call** from the main screen, users can start streaming calls.
Enable Streaming Announcement	Specifies whether the names of users logged on to the streaming system are displayed on screen.
Restore Defaults	Restores to original settings.

To stream a conference:

1. On the main screen, select **Call Type > Streaming Call**.
2. Enter the password users must enter to view the streamed call from a browser. Give this password to users who need to access the stream.
3. Select **Start** to begin streaming.
4. Place the video call to other participants.

You can also start streaming after you place the call.

To stop streaming a conference:

1. Press **Call • Hang Up** on the remote control.
2. Select **Call Type**.
3. Select **Stop Streaming**.

To stream a conference using the web interface:

1. On a PC, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://255.255.255.255`, to go to the system's web interface.
3. Enter `admin` as the user name, and the admin password, if a password has been established.
4. Go to **Set Up System > Admin Setup > LAN, H.323 and Global Services > Streaming**.
5. Click **Click here to go to Start Streaming page**.
6. Click **Start Stream**.

To view a streamed conference:

1. On a PC, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://255.255.255.255`, to go to the system's web interface.
3. Click **View a Meeting**.
4. Log in using this information:
   - **User name**: Your name
   - **Password**: Password defined for the streamed conference. For more information, contact the person who initiated the call.
5. Click **View Streaming Video**.

Instructions for viewing streams are also available in the *Getting Started Guide for ViewStation EX, ViewStation FX, and VS4000*.

Designing General System Behaviors

You can configure the following general system behaviors to accommodate the needs of your organization.

- ❑ General Setup
- ❑ Multipoint Calling
- ❑ Call Answer Mode
- ❑ Passwords and Security Options
- ❑ Date, Time, and System Location

For information about...	See...
Setting video network usage preferences for calls	Configuring Video Call Preferences on page 3-4.
Setting call speeds for users	Configuring Dialing Speeds on page 3-10.

Configuring General Setup

The General Setup screen provides access to high-level options for the entire system. For convenience, some of the User Setup options are repeated on these screens.

1. Go to **System Info > Admin Setup > General Setup**.
2. Configure these settings:

Setting	Description
Language	Sets the language for the user interface.
Country	Specifies the country where the system is located. Changing the country automatically adjusts the country code associated with your system number.
System Name	Enter or change the system name in this field. This name appears on the screen for the far site when you are making calls.
Auto-Answer Point to Point	Specifies whether to answer incoming point-to-point calls automatically.
Auto-Answer Multipoint	Specifies whether to accept incoming multipoint calls automatically.

Setting	Description
Allow Dialing	Specifies whether to allow users to place calls to destinations other than those listed in the Address Book.
Display My IP or ISDN Information	Specifies whether to display the system's IP address, ISDN number, or both on the main screen.
Maximum Time in Call	Enter the maximum number of minutes allowed for call length. When that time has expired, you see a message asking you if you want to hang up or stay in the call. If you do not answer within one minute, the call automatically disconnects. If you choose to stay in the call at this time, you will not be prompted again.

3. Select and configure these settings:

Setting	Description
Allow User Setup	Specifies whether the User Setup screen is accessible to users via the System Info screen. Uncheck this option if you do not want users to change environmental settings.
Allow Address Book Changes	Specifies whether users can save changes they make to the system's local address book.
Keypad Audio Confirmation	Specifies whether to play a voice confirmation of numbers selected with the remote control.
Display Speed Dial	Specifies whether to display the Speed Dial list via the Address Book option.
Allow Modifications to Camera Presets	Specifies whether to allow users to set or change camera preset positions.
Screen Saver Wait Time	Specifies how long the system remains awake during periods of inactivity.

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Configuring Multipoint Calling

You can use the ViewStation systems to participate in multipoint conferences. Multipoint conferences include multiple video sites (IP and ISDN) and can also include voice-only calls. During a multipoint conference, a multipoint conferencing unit (MCU) enables the video to switch to the various sites so that you can see and hear the other conference participants.

You can use the internal MCU or the Conference-on-Demand feature of Polycom's PathNavigator for multipoint calling.

The ViewStation FX and VS4000 are automatically enabled for multipoint calling. If you are using a ViewStation EX, you need to enter a multipoint option key to enable multipoint calling.

Entering a multipoint software registration key (ViewStation EX only)

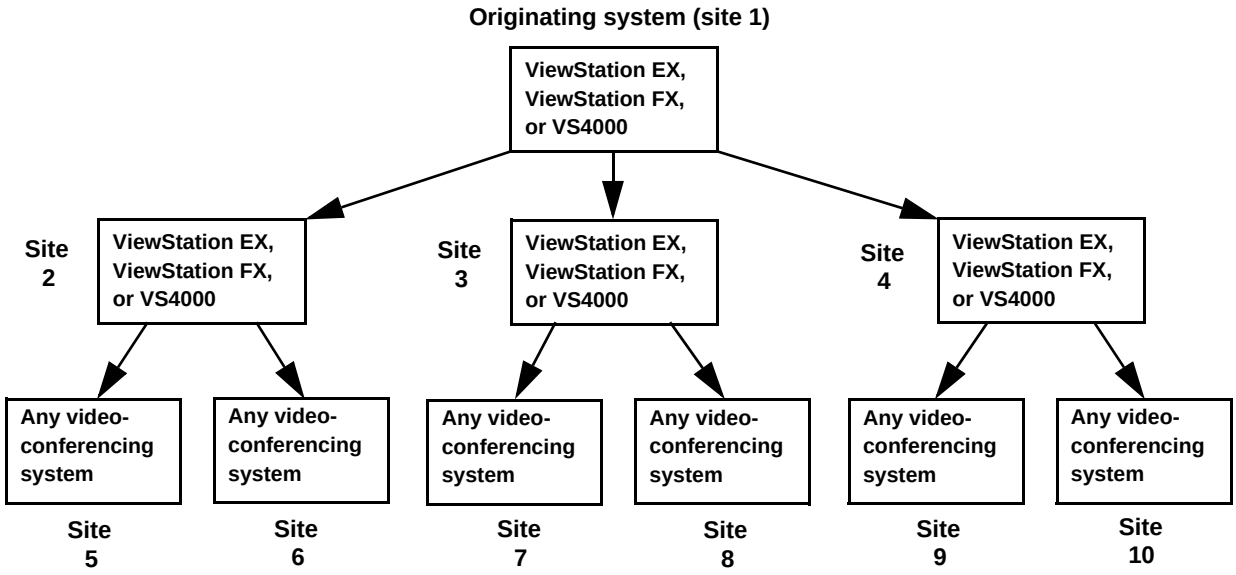
Before placing multipoint calls with your ViewStation EX, you must enter a multipoint software registration key.

1. Go to **System Info > Admin Settings > Software/Hardware > System Options.**
2. Enter the multipoint key provided.

For information about purchasing the multipoint call option, please contact your Polycom distributor.

Including more than three other sites in a cascaded call

You can include up to ten sites in a call if the sites you call have the internal MCU capability. The diagram below shows how to do this.



To place a cascaded call:

1. In the Address Book, create and call a multi-site entry, or place calls to up to three other sites.
2. Ask each far site to call up to two additional sites. Along with these two sites, each far site in the original multipoint call can add an audio-only site.

Calls through PathNavigator cannot be cascaded.

Configuring multipoint settings

You can customize the way video is handled in multipoint calls to best support the types of calls your organization is making.

To configure multipoint video:

1. Go to **System Info > Admin Setup > Video Network > Multipoint Setup**.
2. Configure these settings:

Setting	Description
Multipoint Mode	• **Auto** — The view switches between Full Screen mode and Discussion mode, depending on the interaction between the sites. If multiple sites are talking at the same time, Discussion mode is used. If one site is talking uninterrupted for at least 15 seconds, the speaker appears full screen. • **Discussion** — All sites are displayed at the same time in separate windows on the display. This mode is also called continuous presence. • **Presentation** — The speaker sees all other sites in discussion mode while the other sites see the speaker in full screen mode. • **Full Screen** — The site that is speaking is shown in full screen to all other sites. This mode is also called voice-activated switching.
Auto-Answer Multipoint	Specifies whether to accept incoming multipoint calls automatically.

Configuring with PathNavigator's Conference on Demand feature

If your organization uses Polycom's PathNavigator, you can use PathNavigator's Conference on Demand feature to place multipoint calls with up to 10 sites, including the site that places the call.

In order to place calls using PathNavigator, you need to:

- ❑ register your ViewStation system with PathNavigator,
- ❑ configure your ViewStation system to use PathNavigator for multipoint calls (see Configuring the System to Use a Gatekeeper on page 3-10), and
- ❑ create a multi-site entry in the Address Book that can be used to place the multipoint call.

Things to note when using PathNavigator's Conference on Demand:

- ❑ Once the call begins, users cannot add another site to the call — even if the site was in the call originally and is attempting to rejoin. Because of this, you cannot place cascaded multipoint calls through PathNavigator.
- ❑ The MGC needs to have enough ports available to complete the call. The system displays a message if the MGC does not have enough ports available to connect all the sites.

Setting the Call Answering Mode

You can set up the system to answer calls automatically or manually or to refuse incoming calls.

To set the call answer mode:

1. Go to **System Info > Admin Setup > General Setup**.
2. Select **Auto-Answer Point to Point** to set the answer mode for calls with one site, or select **Auto-Answer Multipoint** to set the mode for calls with two or more other sites.
3. Choose from the following:
   - **Yes** — To answer calls automatically
   - **No** — To answer calls manually
   - **Do Not Disturb** — To refuse incoming calls automatically. The caller receives a message that the site is unavailable.

Configuring AES Encryption

Before you can make encrypted calls, you may be required to enter an AES encryption software registration key.

1. Go to **System Info > Admin Setup > Software/Hardware > System Options.**
2. Enter the AES encryption key provided.
3. Go to **System Info > Admin Setup > Security.**
4. Under **Encryption**, configure these settings:

Setting	Description
Required	Specifies that all calls must be encrypted. If the far site does not support encryption, calls will not be connected.
Disabled	Specifies that the encryption option is not required for calls.
When available	Specifies that encryption will be used when it is available on far site systems, however unencrypted calls will still be connected successfully.

For information about purchasing the AES encryption option, please contact your Polycom distributor.

Setting Passwords and Security Options

You can enter or change the administrator and meeting passwords as well as specify whether to allow remote access to the system.

1. Go to **System Info > Admin Setup > Security.**
2. Configure these settings:

Setting	Description
Admin Password	Enter or change the Admin Password. When the Admin Password is set, you must enter this password to: • Make configuration changes not in the User Settings screen • Update the software • Manage the system using the web interface
Meeting password	Specifies the password users must supply in the following instances: • Joining a multipoint call using the internal MCU • Viewing slides on the web interface • Viewing streams on the web interface • Accessing closed caption on the web interface This field can also be used to store a password required by another system that this system calls. If a password is stored in this field, you do not need to enter it at the time of the call; your system supplies it to the system that requires it.
Software Update Password	Specifies the password required by the system to update the system software from another site over ISDN.
Call Encryption (if enabled on the System Options screen)	Specifies whether to encrypt calls with other endpoints that support AES encryption.
Enable Remote Access	Specifies whether to allow remote access to the system by: • FTP • Web • Telnet • SNMP You may select any of these, or any combination of them. NOTE: The system reboots if you change the remote access settings.
Crypto Resync	Available if a V.35/RS-449/RS-530 network interface module is connected to the system. For information about configuring crypto resync, please see Configuring the Serial V.35/RS-449/RS-530 Network Interface on page 3-18.

Setting System Time

You can set the system time to use local date/time when reporting call data.

1. Go to **System Info > Admin Setup > LAN/H.323 > NTP Setup.**
2. Configure these settings:

Setting	Description
Time Server	Specifies connection to a time server for automatic system time settings. To specify your own time server, select Manual and enter the DNS name or IP address in the field below.
Server IP Address	Specify your own time server, if desired.
Daylight Savings Time	Specifies that the system time is presently adjusting for Daylight Savings Time.
Time Difference from GMT	Specifies the time difference between GMT (Greenwich Mean Time) and your location.

Helping Users Get Started

The system is installed and you've finished the network configuration and designed the behaviors. Now it's time for the users to start placing calls. You may want to spend some time helping your users become familiar with basic calling tasks.

The following resources are available for users:

- *Quick Tips for ViewStation EX, FX, and VS4000* — This two-page quick reference is designed for use during calls and covers the basics of making calls with the ViewStation system.
- *Getting Started Guide* — This guide is for all users, from beginners to the more experienced. It covers meeting basics, different ways to place calls, how to use the remote control, and how to deliver presentations.

Refer to the video documentation at **www.polycom.com/videodocumentation** for the latest documents supporting these products.

5

Managing the System Remotely

You configure, manage, and monitor the system from a remote computer using the system's web interface, the Polycom Management Access (PMAC) Wizard, the Polycom Global Management System™, or SNMP.

Your choice of management tool depends on your network environment:

- ❑ The Web Interface requires only a web browser to control the system.
- ❑ You can download the PMAC Wizard and the Address Book Utility at www.polycom.com/videosoftware.
- ❑ Using the Polycom Global Management System requires the GMS application to be installed on your network.
- ❑ SNMP requires network management software on your network management station.

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Using the Web Interface

You can use the web interface to perform most of the calling and configuration tasks you can perform on the local system.

To configure your browser to use the web interface:

1. Be sure that your web browser uses one of these software versions:
   - Microsoft Internet Explorer 5.5 or later.
   - Netscape 6.0 or later.
2. Configure these settings:

	Internet Explorer	Netscape
Allow cookies	Enabled	Enabled
Force pages to reload on every visit to a page	Enabled	N/A
Set cache to compare page in cache with page on network every time	N/A	Enabled
Enable Javascript	N/A	Enabled

To access the system using the web interface:

1. On a PC, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://255.255.255.255`, to go to the system's web interface.
3. Enter `admin` as the user name, and the admin password, if a password has been established.

You can use the web interface to configure all of the system settings except the remote management settings. For security reasons, these settings must be configured on the local system by an administrator.

Using the PMAC Wizard

The Polycom Management Access Control (PMAC) wizard is a remote access tool that allows you to:

- Define screen access using password protection at the screen level via a management password,
- Add a company logo to the main screen,
- Develop an additional Speed Dial screen, which can be accessed by users via the company logo on the main screen, and
- Create and save profiles on your PC to distribute to other systems.

For more information about using the PMAC wizard, please refer to the instructions in the wizard.

The PMAC wizard is available for download at the Polycom Resource Center at www.polycom.com/videosoftware. The web interface provides a link to this site.

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Using the Address Book Utility

With the Polycom Address Book Utility, you can:

- ❑ Add address book entries quickly and easily on your PC and then transfer them to all ViewStation and VSX systems in your organization.
- ❑ Maintain consistency of address books by saving address book files to a central PC.
- ❑ Distribute address book entries, with the option of adding or replacing the existing entries.
- ❑ Transfer address book files between ViewStations and VSX systems, with the option to include multisite entries.
- ❑ Develop address book files, save them to your PC, and distribute them to systems at a later time.

Adding or editing address book entries

To add or edit entries:

1. Click **New** to create a new entry or select a contact to edit from the list of address book entries.
2. In the **Current Entry** fields, enter or update the contact information.
3. Click **Add** to update the Entries list with the address book entry.

If your PC is connected to a video conferencing system, updates are distributed automatically when you click **Add**.

Maintaining address book entries on systems

When you use the Address Book Utility to connect to a system, the system populates the utility with the current address book entries. You can use the utility as a repository for these entries and connect to a new system to distribute the entries, or you can save the entries as a .csv file on your PC and distribute the entries to systems at a later time.

To transfer address book entries between systems:

1. Click **Connect** and enter the IP address of the system with the address book entries you want to transfer.
2. Click **Disconnect**, then click **Connect** and enter the IP address of the new system.
3. Click **No** when prompted to delete the entries currently loaded in the utility.

If the system you are transferring to is multipoint-enabled, select the **Include multisite entries** option, to upload multisite entries.

4. Click **Upload** to send all address book entries to the new system.

Maintaining address book files on your PC

You can develop address books with the utility even when you are not connected to a video conferencing system. Once you have finished working with entries in the utility, you can save the entries as a .csv file to your PC and distribute the entries to your organization's systems at a later time.

To save address book files to your PC:

1. Update the address book entries as required.
2. Click **Save As...** and save the file to a location on your PC.

To upload a previously-saved file:

1. Click **Open File...**, browse to the file on your PC, then click **Open**.
2. Click **Connect** and enter the system IP address and password, if required, to connect to the system.
3. Click **Upload** to distribute all address book files to the system.

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Using the System with GMS

If your organization uses the Polycom Global Management System, you can configure, manage, and monitor the system using the Global Management System (GMS) server. GMS is a web-based client/server software tool that allows administrators to manage a network of videoconferencing systems.

To use global services for the system, you must configure the following:

- ❑ Global Management Settings and Servers
- ❑ Global Management Contact Information

To configure Global Management settings and servers:

1. Go to **System Info > Admin Setup > LAN/H.323 > Global Management > Setup.**
2. Configure these settings:

Setting	Description
Allow Remote Monitoring	Allows the GMS system administrator to view a call or view the room where the system is installed. You can enable this option only from the local system.
Time Difference from GMT	Specifies the difference between local system time and Greenwich Mean Time.
Daylight Savings Time	Specifies that the system time is presently adjusting for Daylight Savings Time.
Require Account Number to Dial	Requires users to enter an account number in order to place a call. The account number is added to the Global Management System's Call Detail Record (CDR), and this information can be used for call tracking and billing purposes. This feature is available only for GMS 2.0 or later.

Setting	Description
Validate Account Number	Specifies that the account number should be validated by GMS before the call can connect. If you configure the system to validate the account number, calls placed without a valid account number are not completed. If you do not configure the system to validate account numbers, calls are completed regardless of whether the account number is valid. Account numbers are set up in GMS by the GMS administrator. Validated account numbers remain active for five minutes. During that time, you can add other participants to a call. At the end of that time, you must reenter the account number to add participants. If you attempt to add participants with an invalid account number, the call in progress is disconnected.
Global Management URLs (Select Server URLs)	Displays the URLs of the GMS servers that manage your system. When the system registers with GMS, this information is automatically added to this screen. You may also be able to enter the URLs manually. To view or edit Global Management URLs: **1.** Select this field to display the Global Management URLs screen. **2.** Add or edit the URLs. The first system in the list is used for account number validation. If the URL for this system is not entered correctly, the system will not be able to make calls.

To configure Global Management contact information:

1. Go to **System Info > Admin Setup > LAN/H.323 > Global Management > Info 1.**
2. Configure these settings:

Setting	Description
Contact Person Contact Number Contact Email Contact Fax Tech Support City State/Province Country	Lets you enter information about the GMS Administrator users can contact when they need help. The Tech Support number is displayed in the response users get when the submit a message to the Administrator. All other fields are informational. To request help from the GMS Administrator: **1.** Press **Help** and select **Technical Support**. **2.** Enter your telephone number and select **Yes** to send the message. The system confirms that the message has been submitted, along with a number that you can call for help. **3.** A flag appears on the GMS console to notify the Administrator that a message has arrived. **4.** GMS sends you a message when the Administrator views the message.

Setting Up SNMP

The system sends SNMP (Simple Network Management Protocol) reports to indicate the following conditions:

- Low battery power is detected in the remote control.
- A system powers on after a long period powered off.
- Administrator logon is successful or unsuccessful.
- A call fails for a reason other than a busy line.
- A user requests help.
- A telephone or video call connects or disconnects.

To configure the ViewStation system for SNMP Management:

1. Go to **System Info > Admin Settings > LAN/H.323 > SNMP**.
2. Configure these Dialing Rules:

Setting	Description
Enable SNMP	Allows administrators to manage the system remotely using SNMP.
Administrator Contact Name	Specifies the name of the person responsible for remote management of this system.
SNMP Console IP Address	Specifies the IP address of the SNMP traps sent by the system. Enter `0.0.0.0` in this field if any SNMP management console is capable of receiving information from this agent.
Location Name	Specifies the location of the system. The default is *your system name@your country name*.
Community Name	Specifies the SNMP management community in which you want to enable this system. The default community is *public*.
System Description	Specifies the type of videoconferencing device. This is a display-only field.

If you need to access the MIB, ftp into the system and get the file `polycom.mib`.

6

System Usage and Statistics

The ViewStation EX, ViewStation FX, and VS4000 systems provides various screens that allow you to review information about calls made by the system and to review network usage and performance.

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Network Statistics and Advanced Statistics	6-3
Call Status	6-3
Call Log	6-5

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System Information

Using the web interface, you can view details about the system, including:

- ❑ System Information
- ❑ Call Info, which lists the system's time difference from GMT, the total number of calls and total time in calls, and the duration of the most recent call
- ❑ Global Management Info
- ❑ Hardware
- ❑ LAN Settings
- ❑ H.323 Settings
- ❑ Streaming
- ❑ ISDN Information
- ❑ GDS Information
- ❑ GAB Information
- ❑ Call and Network Status, which corresponds to the ViewStation's Call Status screen

To view the System Information screen:

1. On a PC, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://255.255.255.255`, to go to the system's web interface.
3. Enter `admin` as the user name, and the admin password, if a password has been established.
4. Select **Set Up System** to view the **System Information** screen.

Network Statistics and Advanced Statistics

The Network Statistics and Advanced Network Statistics screens provide this information:

This screen...	Displays this information...
Network Statistics	• Call speed (transmit and receive) • Video protocol and annexes in use (transmit and receive) • Video format in use (transmit and receive) • Audio protocol in use (transmit and receive) • Comm protocol in use (transmit and receive) • Encryption type, key exchange algorithm type, and key exchange check code (if the encryption option is enabled and the call is encrypted)
Advanced Network Statistics	• Audio and video data rates specified (transmit and receive) • Video data rate and frame rate in use (transmit and receive) • Video Forward Error Correction (FEC) errors • Audio packet loss and jitter • Video packet loss and jitter • Data conference (enabled or not) • Far site details

To view the Network Statistics:

>> Go to **System Info > Diagnostics > Network Stats**.

You can view Network Statistics during a call by pressing ? on the remote.

To view the Advanced Network Statistics:

>> Go to **System Info > Diagnostics > Advanced Stats**.

Call Status

The Call Status screen provides call connection details. The spheres provide details for each line, and when you place a call you'll see the status change as the call connects.

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You can highlight the spheres on this screen to see details of the number dialed, the relevant status code, as well as details of any errors.

To view the Call Status:

>> Go to **System Info > Diagnostics > Call Status**.

You can view **Call Status** during a call by pressing ? on the remote.

Call Log

The Call Log screen provides the system's call history in the Call Detail Report (CDR). You can view the CDR from the web interface, and you can download the data in CSV format for sorting and formatting.

CSV stands for Comma Separated Value. CSV files can be imported into spreadsheet and database programs.

Every call that connects is added to the CDR, whether it is a call that you make or that you receive. If a call does not connect, the report shows the reason. In multipoint calls, each far site is shown as a separate call, but all have the same conference number.

The CDR does not include incoming calls that the system does not answer, so if calls were missed while Do Not Disturb was enabled, details will not be included in the CDR.

To view the CDR via the web interface:

1. On a PC, open a web browser.
2. In the browser address line, enter the system's IP address, for example, `http://255.255.255.255`, to go to the system's web interface.
3. Enter `admin` as the user name, and the admin password, if a password has been established.
4. Click **Set Up System > Diagnostics > Call Log** to view the details of the file.

Information in the CDR

This table describes the data fields in the Call Detail Report.

Data	Description
Row ID	Each call is logged on the first available row. A call is a connection to a single site, so there may be more than one call in a conference.
Start Date	The call start date, in the format dd-mmm-yyyy.
Start Time	The call start time, in the 24-hour format hh:mm:ss.
End Date	The call end date.
End Time	The call end time.

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Data	Description
Call Duration	The length of the call.
Account Code	If Require Account Number to Dial is enabled on the system, the value entered by the user is displayed in this field.
System Name	The far site's system name.
Call Field Number 1	The number dialed from the first call field, not necessarily the transport address. For incoming calls — The caller ID information from the first number received from a far site.
Call Field Number 2 (if applicable for call)	For outgoing calls — The number dialed from the second call field, not necessarily the transport address. For incoming calls — The caller ID information from the second number received from a far site.
Transport Type	The type of call — Either H.320 (ISDN) or H.323 (IP).
Call Rate	The bandwidth negotiated with the far site.
System Manufacturer	The name of the system manufacturer, model, and software version, if they can be determined.
Call Direction	In — For calls received. Out — For calls placed from the system.
Conference ID	A number given to each conference. A conference can include more than one far site, so there may be more than one row with the same conference ID.
Call ID	Identifies individual calls within the same conference.
Endpoint Type	Terminal, gateway, or MCU.
Audio Protocol (Tx)	The audio protocol transmitted to the far site, such as G.728 or Siren™ 14.
Audio Protocol (Rx)	The audio protocol received from the far site, such as G.728 or G.722.
Video Protocol (Tx)	The video protocol transmitted to the far site, such as H.263 or H.264.
Video Protocol (Rx)	The video protocol received from the far site, such as H.261 or H.263.
Video Format (Tx)	The video format transmitted to the far site, such as CIF or SIF.
Video Format (Rx)	The video format received from the far site, such as CIF or SIF.
Disconnect Reason	The description of the Q.850 (ISDN) cause code showing how the call ended.
Cause Code	The Q.850 cause code showing how the call ended.

Call Detail Report (CDR) Archives

Calls are added to the CDR until the file size reaches 100 KB, which is equivalent to about 150 calls. The system then automatically archives the CDR and creates a new CDR file. If an archive is already present, the new archive overwrites it.

Each CDR starts with Row 1, but the conference numbers continue from the file most recently archived. Conference numbering restarts at 1 after the system assigns conference number 100,000.

To get a CDR:

1. From your computer, open an FTP client.
2. FTP into the Polycom system.
3. Enter either of these FTP commands:

   ```
   GET cdr1
   GET cdr2
   ```

   The `cdr1` file is the current CDR; `cdr2` is the archive.
4. Close your FTP session.

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7

Diagnostics and General Troubleshooting

This chapter covers the diagnostic screens of your ViewStation EX, ViewStation FX, or VS4000 system. It is organized by category to help you troubleshoot any issue.

Diagnostic tools are available via the system itself and the system's web server. To connect to your system's web server and troubleshoot via the web, enter your system's IP address in a web browser and browse to the required diagnostic tool.

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Sending a Message

If you are experiencing difficulties with connectivity or audio, you may want to send a message to the system that you are managing.

Only the near site can see the message; it is not broadcast to all the sites in the call.

To send a message via the web interface:

1. Go to **Set Up System > Diagnostics > Send Message**.
2. In the Send a Message page, enter a message (up to 100 characters in length), then click **Send Message**.

The message is displayed for 15 seconds on the screen of the system that you are managing.

System Management Screens Quick Reference

These screens allow you to view information about the system, configure the system, and diagnose performance issues if they arise. They are available on the system and through the web interface. To view the system management screens, go to the main screen and select **System Info**. Then choose the type of information you need:

This choice...	Presents this information or capability...
Admin Setup	User interface customization, system customization, security, dialing requirements and network configuration, key-enabled options, Global Management System information
Diagnostics	System status and performance, system tests, and system reset. The web interface also offers the Send Message function, and provides access to the Call Detail Report.
System Info	Identifying information

Diagnostics Screens

You can view network statistics and perform diagnostic tests from the system's Diagnostics screens.

To access the Diagnostics screens on the system:

>> Go to **System Info > Diagnostics**.
This screen is accessible without a password.

To access the Diagnostics screens from the web interface:

1. Open a web browser on your computer.
2. Enter the system's IP address, for example, `http://255.255.255.255`.
3. Click **Set Up System**.
4. If a password prompt opens, enter `admin` and the administrator's password.
5. Click **Diagnostics** from any page in the web interface.

The following diagnostic screens and tools are available:

<table>
<tr><th colspan="3">Network and Call Status Tools</th></tr>
<tr><th>Diagnostic Tool</th><th>In the system's user interface</th><th>In the ViewStation web interface</th></tr>
<tr><td rowspan="2">Network Statistics screen

Displays call speed, audio and video protocols, annexes, and error count for the call in progress.

In multipoint calls, the Call Status screen shows most of this information for all systems in the call.</td><td>On the Diagnostics screen, select Network Stats.</td><td>On the Diagnostics screen, select Network Statistics.</td></tr>
<tr><td colspan="2">For more information about this screen, see Network Statistics and Advanced Statistics on page 6-3.</td></tr>
<tr><td rowspan="2">Advanced Statistics screen

Displays audio, video, and other data rates, errors detected, and identifying information about the system at the far site.

In multipoint calls, the Call Status screen shows most of this information for all systems in the call.</td><td>On the Diagnostics screen, select Advanced Stats.</td><td>On the Diagnostics screen, select Advanced Statistics.</td></tr>
<tr><td colspan="2">For more information about this screen, see Network Statistics and Advanced Statistics on page 6-3.</td></tr>
</table>

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<table>
<tr><th colspan="3">Network and Call Status Tools</th></tr>
<tr><th>Diagnostic Tool</th><th>In the system's user interface</th><th>In the ViewStation web interface</th></tr>
<tr><td rowspan="2">Call Status screen

Displays call type, data speed, and number dialed for the current call.

In ISDN calls, this screen also displays connection status for each channel. Selecting a channel call progress indicator displays its ISDN number.

In calls placed through the V.35/RS-449/RS-530 network interface, this screen displays the states of these signals:
• DTR
• RTS
• CTS
• DSR
• DCD
• RI

Bright indicators show high signals; dim indicators show low signals.</td><td>On the Diagnostics screen, select Call Status.</td><td>On the Diagnostics screen, select Call Status.</td></tr>
<tr><td colspan="2">For more information about this screen, see Call Status on page 6-3.</td></tr>
<tr><td rowspan="2">Call Log screen

Displays the current Call Detail Report (CDR) and provides access to the archived CDR.</td><td>Not available.</td><td>On the Diagnostics screen, select Call Log.</td></tr>
<tr><td colspan="2">For more information about this screen, see Call Log on page 6-5.</td></tr>
</table>

IP Connectivity Tools		
Diagnostic Tool	**In the system's user interface**	**In the ViewStation web interface**
Near End Loop test Tests whether your system is able to make IP calls successfully. Monitor 1 displays the video and plays the audio that would be sent to the far site in a call. This test is not available when you are in an IP call.	**1.** On the **Diagnostics** screen, select **Near End Loop**. **2.** Select the **Near End Loop** icon to start the test **3.** Press any button on the remote control to stop the test.	**1.** On the **Diagnostics** screen, select **Near End Loop**. **2.** Click **On** to start the test **3.** Click **Off** to stop the test.
Ping test Tests whether the system can establish contact with a far-site IP address that you specify. This test is not available when you are in an IP call.	Not available	**1.** On the **Diagnostics** screen, select **Ping**. **2.** Enter the IP address that you wish to test. **3.** Select **Start**. If the test is successful, the system displays a message indicating that the IP address under test is available.

Video and Audio Tools		
Diagnostic Tool	**In the system's user interface**	**In the ViewStation web interface**
Color Bar test Tests the color settings of your monitor for optimum picture quality. If the color bars generated during the test are not clear, or the colors do not look correct, the monitor needs to be adjusted	**1.** On the **Diagnostics** screen, select **Color Bar**. **2.** Select **View Color Bars**. **3.** Press any button on the remote control to stop the test.	**1.** On the **Diagnostics** screen, select **Color Bar**. **2.** Click **On** to start the test. **3.** Click **Off** to stop the test.

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Video and Audio Tools		
Diagnostic Tool	**In the system's user interface**	**In the ViewStation web interface**
Generate Tone test Tests the audio cable connections. A 400 Hz audio tone indicates that the local audio connections are correct.	1. On the **Diagnostics** screen, select **Audio**. 2. Select **Generate Tone** to go to the Generate Tone screen. 3. Select Generate Tone. 4. Press any button on the remote control to stop the test. If you are in a call, the far site will also hear the tone.	1. On the **Diagnostics** screen, select **Test System Audio**. 2. Click **On** to start the test. 3. Click **Off** to stop the test. The people at the site you are testing will hear the tone, but you will not. You can send a message to tell them how to notify you when they hear the speaker test.
Audio Meter screen Measures the strength of audio signals from: • Microphone pod(s) • Far site audio • VCR audio • Any device connected to the audio line in If the system is not receiving sound from an audio source: • Check that the cables are connected correctly, and the connectors are fully seated. • Adjust the volume at the audio source. • Microphones: Ensure that people are close enough to the microphone, and check whether the microphone is muted.	1. On the **Diagnostics** screen, select **Audio**. 2. Select **Audio Meter**. The audio meter should register between 0 and 15 dB for each active input. 3. To check the microphone pod(s), speak into the microphone. 4. To check far-site audio, ask a participant at the far site to speak. 5. To check a VCR or DVD, connect it to the VCR inputs, select Camera 3, and play the VCR or DVD to test the audio.	Not available

Reset and Restart		
Operation	**At the system**	**In the ViewStation web interface**
Reset System • Cycles power to the system. • Allows you to keep your system settings (such as system name and network configuration) or restore factory settings. • Allows you to keep or delete the Address Book stored on the system.	**1.** On the **Diagnostics** screen, select **Reset System**. **2.** Enter the system's serial number. **3.** If you wish to restore the original factory settings, select **Delete System Settings**. This deletes the Administrator's password, CDR, and CDR archive along with the other system settings. You may wish to download the CDR and CDR archive before you reset the system. See Call Detail Report (CDR) Archives on page 6-7. If you delete system settings, the setup wizard will lead you through the initial configuration after the system restarts. **4.** If you wish to remove the Address Book, select **Delete Address Book Entries**. This only deletes the system's local Address Book. System reset does not affect the Global Directory. **5.** Select **Reset System**.	Not available
Restart System Cycles power to the system.	Use the power switch on the system's back panel.	**1.** On the **Diagnostics** screen, select **Restart System**. **2.** Click **Restart**.

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Indicators

The ViewStation system and its network interface modules use indicator lights to provide status information. The following tables give the meanings of each indicator.

System Lights

The ViewStation EX and ViewStation FX systems have a two-color light below the camera. When the light is green, it provides system status information. When it is amber, it provides in-call information. The VS4000 system has two lights on the front panel, **In Call** (amber) and **Status** (green).

When the system displays...	It means...
ViewStation EX or ViewStation FX: Light is off VS4000: Lights are off	No power to the system.
Green **Status** light blinks slowly	The system is sleeping.
Green **Status** light is on	The system is ready to make a call.
Amber **In Call** light is on	The system is in a call.
Green **Status** light flashes when you use the remote control	The system is not in a call, and is receiving signals from the remote control.
Amber **In Call** light flashes when you use the remote control	The system is in a call, and is receiving signals from the remote control.

Network Line Check Icons

When you start the system, the main screen displays network line check indicators for IP or ISDN lines or both, depending on how the system is configured. Indicators for lines that are active point up and are green; those for inactive lines are red and point down. The figure at left shows a system with a single ISDN channel that is not available, and an IP connection that is active.

Systems that use a Quad BRI network interface module will show up to four ISDN network line indicators; one for each BRI channel. All BRI network line indicators should be green and point up; if they do not, either there is a problem with your BRI network, or there is a problem with the Quad BRI network interface module.

Network Interface Lights

The Quad BRI network interface has a green light and a yellow light for each BRI channel.

When the Quad BRI network interface module displays...	It means...
Lights are off	• No power to the system, or • The system is not connected to the network, or • The system is not receiving a clock signal from the network, or • The system is restarting.
Green light is on	The system is receiving a clock signal from the network.
Yellow light is on	The system is able to make a call.
Green and yellow lights are on	• The system is receiving a software update, or • The system is operating normally.

The PRI network interface module has lights on both the peripheral side (the side connected to the ViewStation system) and the network side.

The PRI network interface module is available only with the ViewStation FX and VS4000.

When the PRI network interface module's peripheral side displays...	It means...
Amber LED on	Starting the system (brief) or starting software update (over 60 seconds)
Amber and green LEDs on	Software update in progress
Green LED on	Ready[a]

a. If the PRI network interface module is connected to an external power source, the green LED turns on after several seconds, even if the peripheral link cable is not connected.

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When the PRI network interface module's network side displays...	It means...
Amber LED on	Software update starting: Data is being transferred to the PRI network module (approximately 90 seconds)
Amber LED and green LED on	Software update in progress: The module is being updated (a few seconds)
Red LED on momentarily.	Software update finishing
T1 only: Yellow LED on momentarily.	Software update finishing
Green LED on	Software update complete, system synchronized with network and fully operational
Red LED blinking	No power on the line: network cable is unconnected, or upstream switch or PBX port is deactivated
Red LED on	Network cable is connected and power on the line, but no clock sync
Yellow LED blinking	E1: Receiving Remote Alarm Indication (RAI) from network with Cyclic Redundancy Check (CRC) errors
Yellow LED on	T1: Waiting for a timer to elapse E1: Receiving RAI from network with no CRC errors
Red and yellow LEDs on	Receiving clock sync, and receiving AIS Alarm Indication Signal
Green LED on	System fully synchronized with the network and ready to use

The V.35/RS-449/RS-530 network interface module includes a yellow light and a green light on the peripheral side.

When the serial V.35/RS-449/RS-530 network interface module displays...	It means...
Lights are off	• No power to the system, or • The system is not communicating with the network, or • The system is restarting.
Yellow light is on	The system is receiving a clock signal from the network (able to make a call).
Yellow and green lights are on	The system is in a call.

General Troubleshooting

This section presents problems, likely causes, and corrective actions. Problems are presented as follows:

- **Critical problems** — Prevent use of the system or access to common functions.
- **Severe problems** — Prevent you from making calls successfully.
- **Moderate issues —** Prevent you from using basic calling functions.
- **Minor issues** — Detract from the user experience.

Critical Problems

This section describes problems that prevent normal use of the system. They may also mask other problems. For example, if the system is not able to make a call and there are no batteries in the remote, you will need to install new batteries before you are able to determine whether the system can make calls.

Symptom	System	Cause	Solution
The system does not respond in any way.	All	The power switch is in the OFF position.	Turn on the power switch.
		The power cord is not connected.	Connect the power cord, then power on the system.
		The power outlet is not active.	Check the power outlet by unplugging the system and plugging in a lamp, radio, or other small appliance. If it does not operate, connect the system to a different outlet.
		The system's power supply is not operating properly.	Check the power outlet by unplugging the system and plugging in a lamp, radio, or other small appliance. If it operates, the problem is in the system. Call Polycom Technical Support and arrange to return the system for service.

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Symptom	System	Cause	Solution
The system does not respond in any way.	VS4000	The power fuses have failed.	Replace the fuses. Use only 4A/250V slow-blow 5 x 20 mm fuses. **Caution: Using any other type of fuse will void the equipment warranty.** If fuses fail repeatedly, call Polycom Technical Support and arrange to return the system for service.
		The system is not connected to a power source.	Make sure that the system's power cord is in place, and that it is connected to a power outlet.
The system starts in the Software Update screen.	All	The system software is corrupted or not loaded properly.	Load the system software from your PC, or for ISDN-only systems, use another system with current software to update this system. For instructions on how to do this, refer to Keeping your Software Current on page 3-28 or consult your network equipment provider.
The system restarts repeatedly.	All	The power supply is bad.	Return the system for service.
		The socket is corroded.	Unplug and reseat the power plug 5 times.

Symptom	System	Cause	Solution
The system does not respond to the remote control.	All	No batteries in the remote control.	Install batteries in the remote control.
		The batteries are installed incorrectly in the remote control.	Insert the batteries in the correct +/- position.
		The infrared sensor is not receiving signals from the remote control.	Make sure you are pointing the remote control at an infrared sensor. These are present on the front of the VS4000 and on the front of the PowerCam camera. You may also have an external infrared sensor installed. Make sure the transparent protective strips have been removed from the infrared sensors. If you are using an external infrared sensor, check the connections between the rear panel, cable adapter, and cable.
		The external infrared sensor is not operating properly.	Check the connections between the rear panel, cable adapter, and infrared sensor cable.
		The room lights operate in the 38 Khz range and interfere with the remote control signals.	Turn off the lights in the room and try the remote control again.

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Severe Problems

The problems in this section prevent you from making calls successfully. They may also mask less serious problems. For example, if you cannot complete a call and there is also an audio problem, you will need to correct the problem that prevents calling before you can determine whether there is an audio problem.

Symptom	System	Cause	Solution
Cannot enter the Admin Setup screen.	All	The system requires a password.	Enter the password.
System does not allow management via web browser.	All	Wrong password.	Enter `admin` as the user name, and the correct admin password. **Note:** The default password is the system's serial number.
IP calls: The System Information screen shows "waiting" in the IP Video Number field.	All	The LAN is not working.	Check the LAN connection. Contact your network administrator.
		The DHCP server is not available or cannot give out a new address.	Contact your network administrator to correct the problem with the server or to assign a static IP address.
ISDN: PRI network interface module's red lamp is on or blinking.	All	The system is not connected to the PRI network.	Check the PRI network cable.
		There is a problem with the PRI line.	Notify your system administrator or network service provider.
ISDN: PRI network interface module's yellow lamp is on or blinking.	All	There is a problem with the PRI line.	Notify your system administrator or network service provider.

Symptom	System	Cause	Solution
ISDN calls: ISDN Line Status icons do not turn green so ISDN calls cannot be completed.	All	The call is not connecting properly.	Try the call again.
		The system is not connected to an ISDN network.	Check the ISDN line connections.
		The ISDN number or SPID numbers are entered incorrectly. Note: The AT&T point-to-point protocol does not require SPIDs.	Make sure your ISDN numbers are entered correctly. Check the ISDN numbers with your service provider. Select the **Clear** icon on the Auto Detect SPIDs page, and then select the **Start** icon to automatically detect the new SPIDs.
		The system was not able to auto-detect SPIDs.	Check with your ISDN service provider and enter the SPIDs and switch protocol manually.
		The Quad BRI network interface module is directly connected to a U interface.	Install an NT-1 device between your network interface module and the ISDN connection.
		The system is connected to an NT-1 then to a PBX.	You do not need an NT-1device when connecting to a PBX. Connect the system directly to the PBX S/T connection.
		The ISDN line is provisioned incorrectly by the ISDN network service provider.	Check that your ISDN line is provisioned for Voice/Data, Voice/Data.
System displays a message indicating network congestion when placing an ISDN call immediately after starting the system	All	This can occur if the system uses a PRI E1 network interface module that is connected to an Adtran Atlas 800 Plus module. After power on, the Adtran module must complete channel restarts before the system can complete ISDN calls.	Wait about three minutes and try the call again.
Cannot make bonding calls. (The call progress circles only show blue or yellow.)	All	Switch protocol issue.	Start by calling the far site at 1x56, 1x64, 2x56, or 2x64 Kbps, as appropriate. This will verify the primary number. If these calls complete, try 256 Kbps, then 384 Kbps. Being able to make non-bonded calls but not bonded calls to all locations is usually a switch protocol issue. Verify your ISDN provisioning with the telephone service provider.

Symptom	System	Cause	Solution
Placing calls above 128 Kbps does not work. (The Call Progress circles do not turn green, or remain blue after the first channel connects.)	All	The far site may be unable to accept calls above 128 Kbps.	Go to the Call Status screen. Highlight each of the circles for each of the channels dialed. The number dialed for each channel will be displayed as you highlight the corresponding circle. Make sure that the far site has entered the number for each of its ISDN lines correctly. The numbers for Line 1 - Line 4 should correspond to connections 1 - 4 on the Quad BRI network interface module.
The system displays an error message when you place an ISDN call.	All	The system receives an ISDN cause code from the ISDN line.	Try the call again. For more information, please refer to Troubleshooting Notes on page C-1.
		The network interface module is not connected properly.	Check the cables to the network interface module.
		BRI only: The first line did not connect. The system cannot make a call if the first line does not connect.	Be sure you are calling the correct number. The number may need to include: • a digit for an outside line • a long distance access code • an international access code • a country code • an area code or city code Check that all network cables are properly connected. Power off the system, wait five seconds, and power on the system. Then wait about two minutes to allow the ISDN lines to resynchronize. Ask the person at the far site to call your system.
		The ISDN switch type is not configured correctly on the system.	Check the ISDN configuration and verify with your ISDN network service provider that the system is configured correctly.

Symptom	System	Cause	Solution
The system displays an error message when you place an IP call.	All	The system is not connected to the LAN.	Verify that the system's LAN cable is connected properly.
		The system's LAN cable is bad.	Replace the system's LAN cable.
		The far site is not available.	Use the ViewStation web interface to run the Ping test (**Set Up System> Diagnostics > Ping**) to determine whether the far site is accessible to your system. If the test fails, the far site system is unavailable.
		The system is not configured correctly for the network.	Check your IP configuration. For detailed instructions, see Configuring IP Calling on page 3-5.
		The IP Gateway/Gatekeeper is not operating or is not configured correctly.	Contact your network administrator.
The PBX does not accept calls of type "unknown" from the PRI network interface module	All	The PRI network interface is not configured correctly	Verify that you have configured the system's PRI network interface correctly. For detailed instructions, see Configuring the PRI Network Interface on page 3-15.
A system using a V.35/RS-449/RS-530 interface cannot receive calls at certain speeds	All	V.35/RS-449/RS-530 systems cannot determine how to allocate bandwidth for call speeds that are divisible by both 56 and 64 (such as 448K: 8 x 56K), so the call cannot be connected correctly.	Call the far site, or have the caller try again at a different call speed.
Cannot select 112 or 128 speeds for bonding calls from the speed selection.	All	These speeds do not show when you select the speed icon.	Add line speeds on the **Admin Settings > Video Network > Dialing Speeds** screen.
Cannot complete calls to sites that do not use encryption	All	The system displays a message stating that encryption is required.	Your system is configured to require all calls to be encrypted, and encryption is not available at the far site.

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Moderate Issues

The problems in this section interfere with or prevent meaningful communication in a call.

Symptom	System	Cause	Solution
No audio in a call	All	The far site is muted.	Look for the far site **Mute** icon. Ask the far site to unmute the microphone. Note: The far site's microphone may be muted even if you do not see a far site **Mute** icon.
		The volume is turned all the way down on the monitor or external audio system.	Check the monitor's or external audio system's volume setting. Then check the system's audio output using the Speaker Test screen under **Diagnostics > Audio**. You should hear a 400 Hz tone.
		The system's audio outputs are not connected properly.	Check the system's audio connections to the monitor, or to the external audio system if one is connected. Verify that the system is connected to the correct audio connectors on the monitor.
		The far site's microphones are not placed correctly.	Ensure that each person who speaks is facing a microphone and is close enough to it.
		The far site's microphone is not connected or does not have power.	Ask the far site to check the cable to the microphone.
		Too many line errors	Try the call again later.
In a multipoint call, the system displays a picture of a telephone instead of video from one of the far sites.	All	The far site system has connected by audio only. This happens if the far site system cannot connect at the correct bandwidth.	Use a different call speed to call the site, or ask the participants at that site to call your system at a different call speed.
The far site cannot hear you.	All	Microphone is muted	Unmute the microphone
		Microphone is not connected, or is connected incorrectly	Check to be sure the microphone is installed correctly.
		Microphone does not work	Contact your Polycom reseller.

Symptom	System	Cause	Solution
The monitor screen remains blank when you pick up the remote control.	All	The monitor's power cord is not plugged in.	Connect the monitor's power cord and then power on the monitor.
		The monitor is powered off.	Power on the monitor.
		The monitor is not connected correctly to the system.	Verify that the monitor is connected correctly according to the installation procedures in Main Monitor on page 2-5.
One or more system components do not operate properly.	All	The components are not powered on.	Verify that components' power cords are connected to power outlets, and that they have been powered on.
		The components are not connected properly.	Verify that the cables are connected correctly according to the installation procedures in Setting Up Your System Hardware on page 2-1.

Minor Issues

The issues in this table do not prevent meaningful communication, but detract from the videoconference experience.

Symptom	System	Cause	Solution
Cannot access the system from the browser.	All	**DHCP Client** is ON and no DHCP server is available.	Contact your network administrator.
		The system or your computer is not connected to the LAN	Check the LAN cable to the LAN port on the rear of the system. Check the LAN cable to your computer.
		Bad LAN cable.	Check the lights on the back of the system. There should be a steady green light indicating a connection to the LAN, and a flashing orange light indicating LAN traffic.
		Your PC is on a different subnet and there is a router between you and your system.	Change your PC or system subnet mask and IP address so that they are both on the same LAN or subnet.
		There is a firewall between your PC and your system.	Consult your network administrator.

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Symptom	System	Cause	Solution
Not enough audio volume during a call.	All	The volume is set too low on the system.	Turn up the volume using the remote control.
		The volume is set too low on the monitor or external audio system.	Turn up the volume on the monitor or external audio system.
		The microphone pod is too far from the people speaking.	Move the microphone pod closer to the person who is speaking.
Incoming call ring and other sound effects are too loud or too soft.	All	The sound effects volume is not set at the desired level.	Adjust the sound effects volume on the Audio Settings screen. If you do not want to hear sound effects, set the volume to 0.
The system start-up music plays through the system's built-in speaker but not through the monitor speaker.	ViewStation EX ViewStation FX	The monitor cable's audio connectors are not connected properly.	Verify that the monitor is connected correctly according to the installation procedures in Main Monitor on page 2-5
		The monitor's volume is turned all the way down.	Turn up the volume on the monitor.
An echo is heard at the near site when speaking.	All	The far site's microphone is too close to the audio speaker.	At the far site, make sure the microphone is placed away from the audio speaker.
		The far site audio volume may be too loud.	Turn down the audio volume at the far site.
You can hear yourself on your system's monitor or external audio system.	All	The monitor or external audio system is connected to the VCR audio output.	Verify that all equipment is connected correctly according to the installation procedures in Setting Up Your System Hardware on page 2-1
The audio sounds distorted when the person speaking is using a wireless microphone.		The wireless microphone is overdriving the system's audio input.	Turn down the volume on the wireless microphone.
Call participants cannot see or hear what is being played on the VCR.	All	The VCR is not selected.	Select the VCR (Camera 3): Press **Near** twice, and selecting the VCR icon.
		The VCR is not set up correctly.	Check that the VCR is connected according to the instructions in Optional Equipment Setup for VCR on page 2-23. Refer to the manufacturer's instructions to set up the VCR correctly.
The picture is blank on the main monitor.	All	The system goes into sleep mode after a period of inactivity.	Pick up the remote control to bring the system out of sleep mode.

Symptom	System	Cause	Solution
The picture freezes frequently during a call.	All	Too many network line transmission errors, or too much traffic on the network. You can check the error count on the **Diagnostics > Call Statistics** screen to verify this.	Try the call again.
		Network interface cable or cables may be bad.	Replace the cable or cables.
Picture is slow or jerky.	All	Only one 64 Kbps channel is connecting in your call.	Check the ISDN number of the far site. Ask the far site to call your site.
		Video from the far site includes a large amount of motion.	A background with less motion provides a better, smoother video picture.
When using two monitors, the same picture is seen on the first and second monitor.	All	Only one monitor is enabled.	Enable the system for two monitors on the **Admin Settings > Video/Cameras > TV Monitors** screen.
		The second monitor is connected to the VCR video output	Connect Monitor 2 to the Monitor 2 connection on the rear panel of the system.
	VS4000	The monitors are connected to the same output. The monitor has a composite as well as an S-Video output.	Connect Monitor 2 to the Monitor 2 connection on the rear panel of the system.
Edges of picture are cut off when viewing graphics	All	Graphics from the far site are displayed on an NTSC monitor. This problem may occur in multipoint calls using a RADVision MCU.	Use a VGA monitor to display graphics.
Blue screen in the PIP window.	All	No video input.	Check that there is a video source connected to the selected input.
		The camera selection is incorrect.	Select the appropriate camera: Press **Camera**, then press the number of the camera you wish to use. If you are using the older version of the remote, press **Near** twice, then press the number of the camera you wish to use.
		The VCR input is selected and the VCR is not running. Most VCRs generate a blue screen when the tape is not playing.	Select a different camera or play a tape on the VCR.

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Symptom	System	Cause	Solution
Near-site camera does not pan or tilt.	All	You are attempting to move a camera that does not have pan/tilt/zoom capabilities.	Make sure you have selected a pan/tilt/zoom camera.
		Camera control cable is not connected properly.	Check that the camera is connected according to the instructions in Main Camera on page 2-3 or Document Camera or Other Additional Camera on page 2-18.
Cannot select near camera	VS4000	Camera has been disabled in **System Info > Admin Setup > Video/Cameras > Cameras** screen.	Enable the camera.
Camera voice tracking is not working properly.	All	Participants at the far site have been controlling your camera.	Camera tracking is turned off when the near or far site moves your camera. Press the AUTO button on the remote control to restore tracking.
		Someone at the far site is speaking, or the far site is noisy.	The camera stops tracking when participants at the far site begin speaking. This prevents the camera from pointing to your monitor or audio system. If the problem is background noise at the far site, try setting the system to track to camera presets.
		More than one person at the near site is speaking, or the near site is noisy.	Reduce the noise in the room.
		The room setup interferes with voice tracking. Large windows, uncarpeted floors, and the way the unit is mounted on a wall or alcove can interfere with voice tracking.	Consider room treatments that provide acoustic damping, such as carpeting and curtains.
PowerPoint presentation does not export.	All	Wrong version of Microsoft Office.	Use a current version of Microsoft Office.
		Insufficient disk space.	Slides are stored in the `Windows\Temp` directory on your PC. Create more room on your PC.
		There are too many presentations on the system. Only eight presentations are allowed.	Delete some presentations from the system and restart the system.
		The presentation is too large.	Separate your presentation into two smaller presentations.

Symptom	System	Cause	Solution
Web browser does not allow showing PowerPoint presentations from the PC to the system.	All	Wrong version of Web browser.	Use Internet Explorer 5.5 or later. Internet Explorer must have ActiveX enabled.
Cannot connect to the PC from the system for presentation. The PC name is there but the PC presentation cannot be accessed when the slide button is pressed.	All	Incorrect password.	Enter the correct password that was entered on the PC.
		There is a firewall between the system and the PC.	Consult your IT manager.
		Too many presenters are logged in. The system allows a maximum of eight presenters or PCs to be logged in at one time.	Ask some of the other presenters disconnect.
The far site cannot view slides properly; they appear momentarily, but do not remain on-screen.	All	The far site does not support Annex D high-resolution graphics.	Advise the far site participants that their system does not support this feature, and continue the call without presenting slides.
The snapshot feature is not working properly.	All	The selected camera is not available.	Select a camera that is in use.
Snapshots and presentations cannot be viewed, though the PC has access to the main Web page of the system.	All	Too many viewers logged in. The system supports up to 30 viewers via the Web browser in a call.	Ask some of the viewers disconnect, or change the slide-viewing password on the **Security** screen to allow only authorized viewers.
Cannot view presentation or snapshots from the web.	All	The security level is set to “High” on the Web browser.	Lower the security level on the browser to “Medium” or “None.”
		Wrong version of Web browser.	Use Internet Explorer 5.5 or later.
		Incorrect viewing password.	To check the slide and snapshot viewing password and other information about your presentation, press the INFO button on the remote control during a presentation. The viewing password may be changed on the **Security** setup screen.
The monitor displays an error icon during an ISDN call.	All	The system has received more than the acceptable number of CRC errors or FEC errors within one second.	Retry the call if the video or audio quality becomes unacceptable to the call participants.

Symptom	System	Cause	Solution
The monitor displays an error icon during an IP call.	All	The system has detected packet loss above the acceptable level set for the system.	Retry the call if the video or audio quality becomes unacceptable to the call participants.
Low battery icon on the screen.	All	Low batteries in the remote control.	Replace the batteries in the remote control with three AAA batteries.

Normal System Behaviors

The following behaviors are part of the system's normal operation:

System	Behavior	Meaning
All	Camera turns to the side and the monitor goes blank after displaying the splash screen.	The system is entering sleep mode.
All	Screen is blank; start music plays and Polycom logo appears briefly.	The system is starting.

How to Contact Technical Support

If you are not able to make test calls successfully and you have verified that the equipment is installed and set up correctly, contact Polycom Technical Support by telephone or Internet as described below.

By Telephone

Before calling Polycom Technical Support, please have the following information ready. We also suggest that you go to **System Info > System Information** so that you will have the System Information screen showing when you call for help.

- ❑ Description of the issue — What is happening or not happening, and any related events you may have noticed.
- ❑ The 14-digit serial number on the bottom of the system.

Contact Polycom Technical Support at 1-800-POLYCOM.

By Internet

To contact Polycom Technical Support, go to www.polycom.com/support.

Enter the following information, then ask a question or describe the problem. This information helps us to respond faster to your issue:

- ❑ The 6-digit serial number in the System Information screen (also present on the bottom of the system)
- ❑ The software version (from the main screen, select **System Info > System Information**)
- ❑ Information about your network
- ❑ Troubleshooting steps you have already tried.

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A

Installation Notes

This appendix contains information that you may need before installing your system.

What's in this Appendix?	Page
Predeployment Planning	A-2
ISDN Provisioning	A-3

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Predeployment Planning

Polycom recommends the following as best practices when deploying Polycom IP voice and video applications.

- **Determine bandwidth requirements.** Consider the total amount of bandwidth associated with video sessions prior to deployment. It is recommended that all H.323 video endpoints, CPSs, gateways, and MCUs be connected to a dedicated 10/100 switched-Ethernet port.
- **Consider network requirements.** Building an end-to-end H.323 video network requires an infrastructure based on layer 2 and layer 3 switches and routers.
- **Consider system requirements.** Be sure to meet the minimum server hardware requirements of all software-based products.
- **Consider latency, jitter, and packet loss.** All are obstacles to high quality audio and video. The table below recommends maximum values for these parameters.

Parameter	Maximum recommended value
Latency	less than 150 ms one way; 300 ms end to end
Jitter	50 ms or less
Packet loss	1% or less

ISDN Provisioning

ISDN PRI

The PRI T1 needs to be provisioned for the ViewStation FX and VS4000 systems as follows:

Line settings	ESF/B8ZS (default) Extended Super Frame B8ZS is modem standard for T1/PRI line encoding and framing
Line termination type	CPE (user side) only The required termination is built into the system and most access switches
Supported PRI switch protocols	AT&T 4ESS, AT&T 5ESS, NI-1, NI-2, Siemens, Nortel DMS 100, and Nortel 250 These are standard protocols for North America
Number of channels	23 B-channels dialable at 64 or 56 Kbps, and one D channel Ensure that you have 64 Kbps clear channel service
Number of network interfaces	1 (single PRI)
Line build-out modes	DSU+CSU (0 to –22.5dB attenuation), DSU-only (DSX 0-665 feet) Physical distance is offset by the settings in the user interface
Clocking	Must be derived from the external network or the PBX
Terminal Endpoint ID (TEI)	0-63 This identifies the PRI endpoint; the common default is 0
Numbering	One local directory number per interface (23 channels)
D-channel slot number	24 Included to verify where the D channel is; this is where additional diagnostic information resides
Call-by-call service codes	Values 0-31 service codes for GVPN/PN/UPN network-specific services

The PRI direct from the telephone service provider should support both data and voice for Polycom's voice add-on capability of systems.

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ISDN BRI

All Polycom ISDN BRI interfaces are S/T-loop. ISDN BRI lines coming direct from a Telco are U-loop, so if your system is not behind a PBX or other private network, you must connect the BRI interface to BRI line(s) through an NT1 device capable of supporting multiple BRI lines.

For ISDN BRI lines to be used from a PBX to a videoconferencing system, you must do these things in addition to meeting the other requirements.

- ❑ Determine the interface type of the ISDN BRI network module in the PBX (U-loop or S/T-loop). This will determine whether or not you need an NT1 device between the PBX and the ISDN BRI interface of the videoconferencing system.
- ❑ If the ISDN BRI network module in the PBX is S/T-loop, there is a 500-foot limitation with S/T-loop ISDN. The module may still require a special jack with a resistor.
- ❑ Ensure that the ISDN PRI or multiple BRI lines, on the public side (from the Telco) are provisioned to carry data traffic as if it was connected directly to the videoconferencing systems as discussed in the appropriate sections above. Voice can be added but is not required. Items such as switch protocol, numbering plans, etc. are not necessary as those are determined by the PBX connecting to the ISDN lines from the Telco side.
- ❑ Ensure that the ISDN BRI lines' channels that connect to the videoconferencing systems are mapped appropriately to the channels on the public network side of the PBX that connects to the Telco's ISDN cloud. This is critical also for the success of the inbound calls from systems outside the company to ensure that the ISDN number, provided to the videoconferencing system by the PBX, is routable in the public ISDN cloud and through the PBX to the appropriate videoconferencing system.
- ❑ The ISDN BRI lines between the PBX or other CPE and the videoconferencing system(s) should be provisioned in the same way as ISDN BRI lines that would be connected the system(s) directly from a Telco, as described below.

The following requirements are common to all BRI deployments.

- ❑ ISDN BRI lines need to be configured in the same way as one of the following two Bell Core equivalents:

  Capability Package R: Circuit Switched Data on 2 B channels. Data capabilities include Calling Number Identification. No voice capabilities are provided.

  Capability Package S (recommended if system is not behind a PBX): Alternate Voice/Circuit Switched Data on 2 B channels. Data and voice capabilities include Calling Number Identification.
- ❑ Both B channels must carry circuit-switched videoconferencing data (voice can be added but is not required).

- ❑ The ISDN BRI service must allow videoconferencing calls to be dialed on either B channel or on both simultaneously.
- ❑ The D channel should not permit X.25 packet data.
- ❑ The ISDN BRI service must be configured as Terminal Type A.
- ❑ The ISDN BRI service must support automatic Terminal Endpoint Identifiers (TEIs).
- ❑ The ISDN BRI service must be tariffed and available from the customer's local central office.

B

Network Configuration Notes

Polycom recommends that you take these steps before you start configuring the system.

- ❑ Determine the appropriate IP precedence for use in Quality of Service (QoS) enabled networks.
- ❑ Document the LANs, subnets, and WAN links involved in the deployment.
- ❑ Define call processing architecture and identify gatekeepers
- ❑ Define registration policy and call policy.
- ❑ Define details of services, routing, policies, zones, and addressing.

The predeployment worksheet on the next page can help you to gather the information you need about your network.

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Predeployment Worksheet

This worksheet will help you get the information you need to install videoconferencing systems on your company's LAN computer network. Complete this worksheet before you start the installation. Once you have this information, refer to this worksheet as needed.

To use your system for LAN-based system management and LAN-based software upgrades you need to know the type of addressing your network uses:

- DHCP (Dynamic Host Configuration Protocol) (Recommended for LAN calls)
- Fixed IP address (Recommended for LAN calls)

IP address for the system _____.____.____.____

Subnet Mask _____.____.____.____

LAN Gateway _____.____.____.____

Check the type of configuration the system uses. Check only one:

- Use DNS Server Configuration
- Use WINS Server Configuration

Note: DHCP configures DNS servers automatically.

Host _____

Domain _____

Primary WINS _____.____.____.____

Primary DNS _____.____.____.____

Secondary WINS _____.____.____.____

Secondary DNS _____.____.____.____

To ready your system for LAN-based videoconferencing, you also need to know:

Gatekeeper DNS name or IP address (if necessary) _____

Alias for the videoconferencing system _____

Extension (Terminal ID or E.164 number) for the videoconferencing system _____

SNMP Information (if necessary) _____

If you intend to ready your system for remote management via Simple Network Management Protocol (SNMP), you also need to know:

IP address for the network management station _____._____._____._____

SNMP community string _____

Dialing Directory Information (if necessary) _____

If you intend to use central dialing directories with your videoconferencing system(s), you need to know:

Global Directory Server (GDS) or Central Directory (LDAP) Server URL or IP address _____

IP Address _____

Server Password _____

If using Global Management Server: _____

IP address for GMS Server _____

C

Troubleshooting Notes

When a system places or receives an ISDN call, the events during the call sequence generate diagnostic codes. The Q.850 standard defines these codes.

The ViewStation EX, ViewStation FX, and VS4000 systems capture some of these cause codes — such as the reason for call disconnection — in the Call Detail Report. Other codes cause the systems to display error messages. The Q.850 codes can be used to isolate and diagnose unexpected system behaviors.

Q.850 Cause Codes

The following table describes codes that the ISDN switch sends to the router to indicate call status. Although the codes are standardized, each ISDN service provider defines them differently. Because of this, the definitions in the table may not exactly match the messages that you see.

Code	Cause	Definition
1	Unassigned number	The switch received the sent ISDN number in the correct format, but no destination equipment uses the number.
2	No route to specified transit network	The ISDN exchange does not recognize the intermediate network through which to route the call.
3	No route to destination	The intermediate network through which the call is routed does not serve the destination address.
6	Channel unacceptable	The specified channel does not provide adequate service quality to accept the requested connection.
7	Call awarded and delivered	The user is assigned an incoming call that is being connected to a call channel that has already been established for this user and this type of call.

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Code	Cause	Definition
16	Normal call clearing	The originator or receiver of the call has requested that it be cleared.
17	User busy	All B channels are in use; the called system acknowledges the connection request, but is unable to accept the call.
18	No user responding	The destination equipment does not respond to the call, so the connection cannot be completed.
19	No answer from user (user alerted)	The destination equipment did not complete the connection within the prescribed time after responding to the connection request. The problem is at the remote end of the connection.
21	Call rejected	The destination equipment is capable of accepting the call, but has rejected it for an unknown reason.
22	Number changed	The ISDN number used to set up the call is no longer valid. (The diagnostic field of the message may return an alternate address assigned to the called equipment.)
26	Non-selected user clearing	The destination is capable of accepting the call, but did not assign it to the user.
27	Destination out of order	A signaling message cannot be delivered because the interface is not functioning correctly, and the destination cannot be reached. This condition might be temporary; for example, remote equipment might be turned off.
28	Invalid number format	Destination address was incomplete or presented in an unrecognizable format, which prevented the connection from being established.
29	Facility rejected	The network cannot provide the facility requested by the user.
30	Response to STATUS INQUIRY	The equipment returns this message when it receives a STATUS INQUIRY message.
31	Normal, unspecified	A normal event has occurred with no standard cause applying. No resulting action is required.
34	No circuit/channel available	The call cannot be taken because no appropriate channel is available to establish the connection.
38	Network out of order	A network problem prevented the call from reaching its destination. Attempts to reconnect will probably fail until the network problem is corrected.
41	Temporary failure	A network error occurred. The problem will be resolved shortly. Attempts to reconnect may succeed.
42	Switching equipment congestion	The destination cannot be reached because the network switching equipment is temporarily overloaded.

Code	Cause	Definition
43	Access information discarded	The requested access information cannot be provided by the network. The diagnostic message may explain the problem.
44	Requested circuit/channel not available	The remote equipment cannot provide the requested channel. This may be temporary.
47	Resource unavailable, unspecified	An unknown problem prevents the remote equipment from providing the requested resource.
49	Quality of service unavailable	The network cannot provide the requested quality of service (as defined by CCITT recommendation X.213). This may be a subscription problem.
50	Requested facility not subscribed	The remote equipment is capable of providing the requested supplementary service, but is not subscribed to it.
57	Bearer capability not authorized	The caller has requested a bearer capability that the network can provide, but the user is not authorized to use. This may be a subscription problem.
58	Bearer capability not presently available	The network normally provides the requested bearer capability, but cannot provide it now. This may be a temporary network problem or a subscription problem.
63	Service or option not available, unspecified	An unspecified problem prevents the network or remote equipment from providing the requested service or option. This might be a subscription problem.
65	Bearer capability not implemented	The network is not capable of providing the bearer capability requested by the user.
66	Channel type not implemented	The requested channel type is not supported by the equipment sending this code.
69	Requested facility not implemented	The remote equipment is not capable of providing the requested supplementary service.
70	Only restricted digital information bearer is available	The network is unable to provide unrestricted digital information over bearer capability.
79	Service or option not available, unspecified	The network or remote equipment is unable to provided the requested service option for an unspecified reason. This might be a subscription problem.
81	Invalid call reference value	The remote equipment received a call with a call reference that is not currently in use on the user-network interface.
82	Identified channel does not exist	The receiving equipment is requested to use a channel that is not activated on the interface for calls.

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Code	Cause	Definition
83	A suspended call exists but this call identity does not	The network received a call resume request that contained a call identity information element that does not match any suspended call.
84	Call identity in use	The network received a call suspend request that contained a call identity information element for a call that is already suspended.
85	No call suspended	The network received a call resume request when there was not a suspended call pending. This might be a transient error that will be resolved by successive call retries.
86	Call having requested call identity has been cleared	The network received a call resume request containing a call identity information element for a call that was cleared while suspended, either by timeout or by the remote user.
88	Incompatible destination	Indicates that an attempt was made to connect to non-ISDN equipment, such as an analog line.
91	Invalid transit network specified	The ISDN exchange was asked to route the call through an unrecognized intermediate network.
95	Invalid message, unspecified	An invalid message was received, for an unknown reason. This is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.
96	Mandatory information element is missing	The equipment received a message that did not include one of the mandatory information elements. This is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.
97	Message type nonexistent or not implemented	The equipment received a message of a type that is invalid or not supported. This code indicates either a problem with the remote configuration or a problem with the local D channel.
98	Message incompatible with call state or message type nonexistent	The equipment received a message that is not valid in the current call state. Cause 98 is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.
99	Information element nonexistent or not implemented	The equipment received a message that includes information elements which were not recognized. This is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.
100	Invalid information element contents	The equipment received a message that includes invalid information in the information element. This is usually due to a D-channel error.

Code	Cause	Definition
101	Message not compatible with call state	The remote equipment received a message that does not correspond to the current state of the connection. This is usually due to a D-channel error.
102	Recovery on timer expiry	A time-out has triggered an error-handling (recovery) procedure. This problem is typically temporary.
111	Protocol error, unspecified	An unspecified D-channel error when no other standard cause applies.
127	Interworking, unspecified	An event occurred within a network that does not provide causes for the action that it takes. The precise problem is unknown.
145	ISDN layer 1 and/or 2 link not established	User needs to check cabling, ISDN adapter status and network connections.
146	ISDN layer 3 connection to the ISDN switch/network inactive	There is either a switch protocol error, or (in the United States or Canada) a SPID assignment problem.
255	ISDN command processing error	The ISDN signaling code has encountered an error processing an ISDN action. ISDN adapter busy-wait and retry.

Safety and Legal Notices

Important Safeguards

Read and understand the following instructions before using the system:

- Close supervision is necessary when the system is used by or near children. Do not leave unattended while in use.
- Only use electrical extension cords with a current rating at least equal to that of the system.
- Always disconnect the system from power before cleaning and servicing and when not in use.
- Do not spray liquids directly onto the system when cleaning. Always apply the liquid first to a static free cloth.
- Do not immerse the system in any liquid or place any liquids on it.
- Do not disassemble this system (except as instructed in the manufacturer's instructions). To reduce the risk of shock and to maintain the warranty on the system, a qualified technician must perform service or repair work.
- Connect this appliance to a grounded outlet.
- In case of lightning storms, disconnect the telephone line cord from the system, and only connect the system to surge protected power outlets.
- The socket outlet to which this apparatus is connected must be installed near the equipment and must always be readily accessible.
- Keep ventilation openings free of any obstructions.
- SAVE THESE INSTRUCTIONS.

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Warranty

Polycom, Inc. warrants its products to be free of defects in materials and factory workmanship for a period of twelve (12) months from date of purchase. This warranty does not apply to damage to products resulting from accident, misuse, service or modification by anyone other than a Polycom, Inc. authorized service facility/dealer. The warranty is limited to the original purchaser and is not transferable. Any liability of Polycom, Inc. or its suppliers with respect to the product or the performance thereof under any warranty, negligence, strict liability or other theory will be limited exclusively to product repair or replacement as provided above. Except for the foregoing, the product is provided “as is” without warranty of any kind including without limitation, any warranty of merchantability or fitness for a particular purpose. The entire risk of the quality and performance of the software programs contained in the system is with you.

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Polycom, Inc., its agents, employees, suppliers, dealers and other authorized representatives shall not be responsible or liable with respect to the product or any other subject matter related thereto under any contract, negligence, strict liability or other theory for any indirect, incidental, or consequential damages, including, but not limited to loss of information, business, or profits.

The law of certain states or nations does not permit limitation or exclusion of implied warranties and consequential damages, so the above limitations, disclaimers, or exclusion may not apply to you. This warranty gives you special legal rights. You may also have other rights that vary by state and nation.

Warning

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

USA and Canadian Regulatory Notices

FCC Notice

Part 15 FCC Rules

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.

Class A Digital Device

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

In accordance with Part 15 of the FCC rules, the user is cautioned that any changes or modifications not expressly approved by Polycom Inc. could void the user's authority to operate this equipment.

Part 68 FCC Rules

This equipment complies with Part 68 of the FCC rules. On the label of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

This equipment may not be used on a coin service or party line.

If you experience trouble with your ViewStation EX/FX/VS4000, disconnect it from the telephone line to determine if the registered equipment is malfunctioning. For repair or warranty information, please contact Polycom Inc. at 1-888-248-4143 or 4750 Willow Road, Pleasanton, CA 94588-2708, USA. Contact information may also be found at http://www.polycom.com/. If the system is causing harm to the network, the telephone company may request that you disconnect it until the problem is corrected.

If your ViewStation EX/FX/VS4000 causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. However, if advance notice is not practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of your equipment. If they do, you will be given advance notice so that you may make any changes necessary to maintain uninterrupted service.

The REN is useful to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs of all devices that may be connected to a line, is determined by the total RENs, contact the local telephone company.

FCC compliant telephone cords and modular plugs are provided with this equipment. This equipment is designed to be connected to the telephone network or premises' wiring using a compatible modular jack, which is Part 68 compliant. See installation instructions for details.

WHEN PROGRAMMING EMERGENCY NUMBERS AND/OR MAKING TEST CALLS TO EMERGENCY NUMBERS:

1) Remain on the line and briefly explain to the dispatcher the reason for the call.

2) Perform such activities in the off-peak hours, such as early morning or late evening.

Industry Canada (IC)

This class A digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de la classe A est conforme à la norme NMB-003 du Canada.

The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Ringer Equivalence Number (REN) assigned to each relevant terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed 5.

The REN of this equipment is either marked on the unit or included in the new style USA FCC registration number. In the case that the REN is included in the FCC number, the user should use the following key to determine the value:

- The FCC number is formatted as US:AAAEQ#TXXX.
- # is the Ringer Equivalence Number without a decimal point (e.g. REN of 1.0 will be shown as 10, REN of 0.3 will be shown as 03). In the case of a Z ringer, ZZ shall appear. In the case of approved equipment without a network interface or equipment not to be connected to circuits with analog ringing supplied, NA shall appear.

EEA Regulatory Notices

CE Mark

This ViewStation EX/FX/VS4000 has been marked with the CE mark. This mark indicates compliance with EEC Directives 1999/5/EC. A full copy of the Declaration of Conformity can be obtained from Polycom Ltd., 270 Bath Road, Slough UK SL1 4DX.

Declaration of Conformity:

Hereby, Polycom Ltd. declares that this ViewStation EX/FX/VS4000 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Konformitetserklæring:

Hermed erklærer Polycom Ltd., at indestående ViewStation EX/FX/VS4000 er i overensstemmelse med de grundlæggende krav og de relevante punkter i direktiv 1999/5/EF.

Konformitätserklärung:

Hiermit erklärt Polycom Ltd., dass der ViewStation EX/FX/VS4000 die grundlegenden Anforderungen und sonstige maßgebliche Bestimmungen der Richtlinie 1999/5/EG erfüllt.

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Δήλωση Συμμόρφωσης:
Δια του παρόντος, η εταιρεία Polycom Ltd. δηλώνει ότι η παρούσα συσκευή (δρομολογητής) ViewStation EX/FX/VS4000; πληροί τις βασικές απαιτήσεις και άλλες βασικές προϋποθέσεις της Οδηγίας 1999/5/ΕΚ.

Vaatimustenmukaisuusvakuutus:

Polycom Ltd. vakuuttaa täten, että ViewStation EX/FX/VS4000 on direktiivin 1999/5/EC keskeisten vaatimusten ja sen muiden tätä koskevien säännösten mukainen.

Déclaration de conformité:

Par la présente, Polycom Ltd. déclare que ce ViewStation EX/FX/VS4000 est conforme aux conditions essentielles et à toute autre modalité pertinente de la Directive 1999/5/CE.

Dichiarazione di conformità:

Con la presente Polycom Ltd. dichiara che il ViewStation EX/FX/VS4000 soddisfa i requisiti essenziali e le altre disposizioni pertinenti della direttiva 1999/5/CE.

Verklaring van overeenstemming:

Hierbij verklaart Polycom Ltd. dat diens ViewStation EX/FX/VS4000 voldoet aan de basisvereisten en andere relevante voorwaarden van EG-richtlijn 1999/5/EG.

Declaração de Conformidade:

Através da presente, a Polycom Ltd. declara que este ViewStation EX/FX/VS4000 se encontra em conformidade com os requisitos essenciais e outras disposições relevantes da Directiva 1999/5/CE.

Declaración de conformidad:

Por la presente declaración, Polycom Ltd. declara que este ViewStation EX/FX/VS4000 cumple los requisitos esenciales y otras cláusulas importantes de la directiva 1999/5/CE.

Överensstämmelseförklaring:

Polycom Ltd. förklarar härmed att denna ViewStation EX/FX/VS4000 överensstämmer med de väsentliga kraven och övriga relevanta stadganden i direktiv 1999/5/EG.

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Australia

Mains Powered POTS Voice Telephony Without Emergency 000 Dialing

Warning: This equipment will be inoperable when mains power fails.

Japan

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあす

Underwriters Laboratories Statement

The system is intended to be powered only by the supplied power supply unit.

Special Safety Instructions

Follow existing safety instructions and observe all safeguards as directed.

Installation Instructions

Installation must be performed in accordance with all relevant national wiring rules.

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